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YOUR 64

APRIL 1985

95p No. 8

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protecting your home area from the intruders. An alien sound every corner, a horror under every rock.

Press the wires, hang on the bottom in a line, see us, 50000, who doesn't understand it, who has City (Hills) no, because in your computer that is what is called a microprocessor is what.

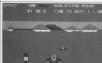


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OPEN ACCESS

Welcome to Open Access — stop this way for tricks 'n' tactics, book reviews, Computer and much, much more!



How many software from Bubble Bus?

In The Swim?

For those with watery tastes, Bubble Bus Software has released Aqua Race — a game written in machine code for the IBM 84. Complete with authentic 3D graphics (it says here) your task is to steer the racer around the course on-screen, watching out all the while

for the jagged rocks that threaten to send your vessel down to Davy Jones' Locker!

There's 20 different courses to race around, and Bubble Bus is claiming that the music accompanying the game has been especially written for it. (Wow! So!) You can catch Bubble Bus on (0772) 395862.

Buy This!

Ten software houses are joining forces to produce the computer games equivalent to David Atten's top-selling single Feed the World.

Soft-tek features ten of the best selling games from companies like Creative, Activision, Ocean and Silversoft. These so far include Feed Chinese Juggler, Pyramid and Worse Things Happen At Sea. Soft-tek will be available in March. The tape will cost a mere £2.99 and all proceeds will go towards the Ethiopian Famine Appeal. If you want to hurry the proceeds along, don't bother Feed us (0783) 374307, just rush out and buy the tape!



Teb's Duxet+ — a great feature with a differential. Versatile Reset

The Duxet+ is a new multi-purpose reset switch for the 84, on sale from: IAS Services.

As well as being fitted with a 'cold start' reset button — to hold the computer out of crashes — the Duxet+ is also fitted out with an audio/digital selector. Switch the selector to 'audio', and soundtracks or musical effects can be recorded directly as games are being played; flip to the 'digital' position and security back-ups

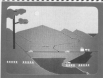
are as easy as pie. The Duxet+ is supplied as standard with both five- and ten-pin DIN plugs, for compatibility with the two variants on the 84. A third cable, also with five-pin DIN, is wired to suit most makes of cassette player.

For a mere £15.95, you can purchase the Duxet+ along with its 'various' cassette and instruction booklet, from: Teb Services, 106A Avenue Green, Exton, Kent G28 2BA. Telephone enquiries can be made on (0332) 347292.

Go on, Crack It!

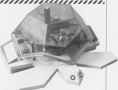
Osprey, a game developed in conjunction with the RSPB and designed to illustrate the complexities of wildlife conservation, has just been nominated for the Computer Trades Association Education Program of the Year award.

With teams of students at your disposal, the aim of the game is to ensure the survival of the Osprey by jostling with real-life hazards as they arrive, tourists and adverse weather



conditions. Produced by Bourne Education Software, Osprey is now available for the 84 and will set you back £8.95 for the

cassette version and £11.95 on disc. Bird-lovers should get on the line with hopeful award winners Bourne on (0284) 833331.



Look at with LOOG, it's Valent's Turtle.

Souped-up Turtle!

Valent Designs Ltd has produced a new remote controlled turtle, for use in education. This can be interfaced with the IBM 84. Valent is also producing interface software to enable its turtle to be at the back and call of the more powerful versions of LOOG, as well as other turtle graphics programs. The Valent Turtle has

two independent stepper motors and is designed to move in units of one centimetre. It's also got the facility to draw smooth circles and arcs. Sold as a package, complete with turtle, instruction manual, batteries, communication pen, power adaptor and software, the Valent Turtle will set you back £175. For further information, contact Valent Designs on (0332) 718421.



Anyone want to be a? Enter your name in the next issue of Open Access.

You're Kidding!

Can you jump 65 cars on your CDM-84? Well,

Chris Harrington can on his 24 Spectrum, and Jason Ellis cleared 36 cars on his BBC 'W'. The 6808 Kiki Jump

challenge competition have been so successful that Match-It has decided to run a third compo, ... and that closes on 31st May, 1988. Each of the three winners may choose between an Elwick Falcon BMX bike, a Toshiba MX50 mini or a Philips TV. Crown all you 84 owners out there — let's see if you can outdo the Spectrum/BBC ones. Give Match-It a ring on (0323) 766458 and get those entries in fast.

Currah Speech 64

Speech Synthesizer

The Currah Speech 64 synthesizer and powerful amplifier uses the popular SPQ256-A1.2 speech chip and has an almost infinite vocabulary. It has a text-to-speech interpreter for ease of speech output creation. Everything you wish to be spoken is entered in normal English, without special control codes or characters, it is therefore extremely easy to use. The coding of the words is completely user transparent and the computer can carry on its normal running of a program while the speech chip is talking.

Speech Synthesis

The Commodore 64 speech synthesis utilizes parts of the spoken word known as allophones. These are actual sounds that go to make up speech. The SPQ256-A1.2 allophone speech synthesis technique provides the ability to synthesise an almost unlimited vocabulary. Fifty-nine discrete speech sounds (allophones) and five pauses are stored in the speech chip's internal ROM.

Text to Speech

Although there are only 26 letters in the alphabet, letters have a totally different sound when used in different words. For example, the 'a' in Hay is much longer and softer than in Hat. When you speak you automatically make adjustments because you know how a word should sound. Not quite so easy with a computer.

The 8K byte Read Only Memory contains all the instructions necessary for the SPEECH 64 to perform all of its more advanced functions including "May Voicing" Text to speech conversion "Operating system". Having all the software on ROM means that Speech 64 is ready to use as soon as the computer is switched on. Unlike RAM, ROM is non-volatile, it retains the information inside even when the power is turned off.

The 560 gate "Semi-custom" chip was developed in close co-operation with General Instrument Microelectronics and looks after all the hardware functions ensuring that the SPEECH 64 and your computer communicate properly.

Output via the T.V.

Analogue components together perform the function of turning the speech output from the SPQ256-A1.2 into audio level signals that can be fed into the C64 for output to the TV. They filter out the undesirable low and high frequency signals in the speech output and also amplify the signal to a suitable level.



New Basic Commands

There are 5 new Basic Commands which control all the functions of the interface. Making the Synthesizer very easy to use. You can even choose from a high or low voice and individual allophones can be "tuned" to add character. Or use the synthesizer to create voice like sound effects.

10 SAY "HELLO"

The above is an example of the Syntax for entering speech into the computer and shows how simple it is to use.

The instruction book gives comprehensive details and examples of how to use the interface both from machine code and basic.

How to Order

The Currah Speech 64 costs only £29.95. You can obtain your synthesizer through any good computer store or by completing the order form and returning it to:

dktronics Limited, Stone Hill, Salford Walsden, Essex, CB
by telephone quoting your Barclaycard or Access number.
Orders normally despatched within 24 hours.

Please rush me

... 1 QTY Currah Speech 64 at £29.95 + £1.25 p&p

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Nice Little
Warrior?

in conjunction with Thames TV, has just released *Minister* — based, as you've probably already guessed, on the TV series starring Tony and Arthur! We've promised the game will be as disreputable as the characters involved, and that it'll feature such infamous locations as the 'back-up'. Terry's flat and David's Winchester Clubs.

You take the part of Arthur (or—man) Daines, and the criminal object of the game is to rob and deal with the usual crowd

of steady characters. You're whisked around in the trusty 'Mini', and the *Monter* theme tune plays all the while — just in case you'd forgotten which game you're reviewing.

On your rollickous way, you're quite likely to bump into Perry, Dave the Gorman and poor old Ploot; ... who's lot is definitely not a happy one. The game is fully interactive and is likely to answer every question you put to it — truthfully or not!

For the week, contact
Don's grand Roger
Harwood on (877) 939-5560.

HARD LINES

Choosing a machine code book for your bookshelves isn't the easiest of tasks... unless you have the advice of Chris Palmer.

Paradox: a person
involved with the
computer age. Struggling
along in the target
quagmire of ideas until
one day (you) find
Paradox: a huge
monolith in the shape of
machine code appears.
But how is the beginner
to comprehend this
evolutionary step?
Simple. Head off to your
nearest bookshop

Winnipeg, 1998
Winnipeg, 1998
Winnipeg, 1998
Winnipeg, 1998

programs. All you in fact get is a handful of simple sound, graphics and some routines, along with a couple of utilities. Not very impressive!

Our third computer really goes: *Elvis: The Musical* series. Written by Joe Silberman and Helen Jones, *Diamonds & Delectables* Circle provides a straight-forward explanation of machine code principles, based on the 64, but there's nothing too exciting. Luckily, it's saved from being an abstruse by the inclusion of some wonderful Casiover-cartoons. It's almost worth buying the book just to catch up on the adventures of the hapless crew of Casio.



around the FBI office, all of which profess to lead us to a more fulfilling life through meditation.

Looking for the Machine Language For The Absolute Beginner by Danny Davis, you might be interested to know that our Antidotebook consists from Littlejohns House mean exactly what they say — it's for the Absolute Beginner! The book starts with some very simple explanations of the underlying concepts of machine code and, by Chapter eight, you're already learning how to put up a little network! A well-presented book that actually lives up to its title.

The second entry from down-under tells under the title of *Supercharge Your Commodore 64* and it's penned by Barry Thomas. Unfortunately, this one doesn't live up to its title. It professes to supply you with a set of ready-made machine code utilities to help you write "more Commodore



Finally, we set up with a weighty tome in the form of *CI Benchmarking's Playbook: Basic, 24 Hour, Customizable*, 64 from Jajava Press. This one doesn't hang around—it's straight in there with hexadecimal and a diagram of the 8000 cities before you've even got your coat off! Out of all the books, this is the one that believes that if you throw enough facts at someone, they'll forget it (or learn eventually). Oddly enough, despite its somewhat "patron saint" approach, this was the only one to give you a game to type in at the end.

[illegible]

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Educational Exhibitions:

The Hi-Technology and Computers in Education exhibition, held at the Barbican Centre, London, earlier this year proved to be a great success. The exhibition was designed to bring education and industry together, and was opened by Robert Gurn, MBE, Commissioner of

Section for the Department of Industrial Engineering

Over 250 exhibitors managed to make it on the day — but perhaps the biggest surprise was the public turnout, even to the point where the seminar groups held while turning away prospective listeners! Commodore International was there, of course, proudly demonstrating its educational software on the old, as well as the

C18 and Plus 4 computers. One particular program worth a second look is Commodore's LOGO, reviewed 4/24/84.

Despite the "Under-18s not admitted" ban — which is a bit of a shock when you consider that they're the very people who'll be taught by computers — the Hi-Techology and Computers in Education exhibition will probably be around next year.

Transhuman parties, science, faith and doubt — but it's keeping the pot of the game well under its cap for the meantime. All the company will guarantee is that it's going to be the only non-terror program available as you can take the place of either Jason or Michael, the two lead characters. *Mixed*

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Rocky Horror Returns!

CRJ, is about to release the *Rocky Horror Show* as a fully animated graphic adventure, claimed to be programmed in 'wonderful rockyasmocode' — whatever that is?

Finger Trouble

Derry later apologized to all those who've spent hours trying to get through to A&E Derry (Open Access, 194, issue-8) about the recent caution. He unfortunately forgot to mention that the phone number (0781 761000) would only be answered between 4 pm and 10 pm.

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■ Whether you're an accomplished musician or an out-and-out beginner, Music Maker strikes exactly the right note.

■ No matter if you've never played a note before, so long as you can hum and you know your ABC, you can start to play famous popular tunes immediately.

■ And it won't be long before you appreciate Music

Maker's many advanced capabilities: you can

synthesise many musical instruments, even

create your own 'synth' electronic sounds.

■ choose between monophonic or polyphonic play, summon up pre-programmed rhythms and bass accompaniments, and more.

■ Music Maker is the first in a series of packages which will fully exploit the Commodore 64's outstanding musical capabilities.

■ On disk or cassette, with music keyboard, a clear and concise manual and song book, for just £29.95.

SPIRIT OF THE STONES

■ It's a treasure hunt for 41 real diamonds hidden somewhere on the Isle of Wight.

■ Only one man knows where they are, and he's not saying.

■ All that he has to say he's said already -

GOLD IF YOU YOU H

but in the form of riddles, clues and puzzles.

■ Solve the puzzles in the Spirit of the Stones program and you'll find it much easier to solve the puzzles in the Spirit of the Stones book.

■ Solve the puzzles in the book and one (or more) of the diamonds can be yours.

■ Whoever discovers a diamond can also claim his or her share of the Royalty Fund, which could grow to a maximum of £1 million. It's a game that's as entertaining as it can be rewarding.

■ On cassette or disk, £14.99.

INTERNATIONAL FOOTBALL

■ Already it's recognised as the best football game ever seen outside of Wembley.

■ It's startlingly life-like, and gives you near-perfect control of the players.

■ You can kick the ball, dribble it, pass it,



NO MEDALLION. HAVEN'T GOT IT HAVEN'T GOT IT.

head it, or even throw it in from the touch-line. And every time you belt the ball into the net, the crowd cheer wildly.

■ How often you

score depends on how good you are, and also at what level you choose to play.



■ There are 9 levels you can play against the computer. Or you can play a friend.

■ International Football is a real test of skill, dexterity and speed. It is certain to drive you football crazy.

■ On cartridge, £14.99.

JACK ATTACK

■ There's no other game like it. It has been voted by the U.S. magazine 'Electronic Games Hotline' as a 'must buy'.

■ Jack Attack is about squashing heads. It's an



addictive game, a game of strategy and cunning. We can almost guarantee it will turn you into a head-case.

■ To stay alive, Jack must leap aside from collapsing bridges and crushing blocks, and at the same time he must



make sure he doesn't fall into the water... and drown.

■ And that's the easy bit.

■ Because everywhere Jack goes he's dogged by jolly bouncing sadistic heads that are out to nut him.

■ He has to squash their heads before he is squashed.

■ And Jack can't afford to lose his head because we've only given him three, and when they've gone, he's gone...



■ Jack Attack is available for both the Commodore 16 and Plus/4. On cartridge £14.99.

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REWRITE THE HIGH SCORE TABLES

So, you've got a Commodore. You've also got enemies. With the Gunshot, you'll have all the opposition cowering in corners. 8-directional action and an all-in-one moulded stem allows accurate annihilation and strength to survive those all-night sessions. Dual fire buttons for fading fingers (and a rapid fire version when they're really coming thick and fast). And, if you break it (and we know you'll try) our 12-month guarantee will prove invaluable. Only £8.95. The Gunshot plugs directly into the CBM 64 and Vic 20.

Ask about Vulcan interfaces for the C16 and Plus 4.

See the range of Vulcan joysticks and interfaces at your local stockist ... we'll see you on the high score tables.



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Joystick Genius

MISSIVES

Witty, intelligent and imaginative readers write to Missives, Your 64, 14
Rathbone Place, London W1P 1DE. So, let's be hearing from you!

Spectrum VS 64?

I am a Spectrum owner with access to a 64, and I was delighted to read the various comments about Sir Clive's flagship in 1984, issue 7.

In your Open Access section, under the headline "Turn your 64 into a 28K Spectrum?", I read that the Spectrum was pointless, had no home graphics and — apparently can only 8000! Of course, the Spectrum can produce graphics to compare with the 64, it does have sprites and has been known to come up with the odd "good turn" (although even I must admit — not a patch on the 64). Another point did like to make quite clear is that the Spectrum offers 28K of RAM, which is more than the 64 when it's making use of all its features!

As I'm writing to you this time, perhaps you'd like to turn a few pages of the same issue and look at a letter from James Slings in your Missives section. He was complaining about all the top machines and then proceeded to tell us that he wished people would stop complaining about machines other than their own. A bit hypocritical, don't you think? As for his remarks about the Spectrum! Adding a disk drive to the 64 costs more than the Spectrum alone. And as for flipping out the ROM to reveal full RAM — even I know that this will leave the 64 useless!

I hope that you'll publish this letter as I'm dying to see if Mr Slings will dare to respond...
P O'Farrell, Bray, Co Wicklow

I'm interested to hear what Mr Slings has to say as well... and agree that who needs to throw in their hat postscript, far as it has me to embrace the 32 Spectrum — but I'm not sure it's quite how you describe it, is it.

Nobody Does It Better?

All magazines have faults... and in my humble opinion, the fact up with one of your advertisers.

In mid-October, I ordered and received a copy of *Cavegame* by Affaire by US-Gold from Miles Better Software. Unfortunately, the game wouldn't load, so I returned it by first class post. Now, four

months later, I'm still waiting for a reply!

I've phoned on four separate occasions and been told that it was in the post. But on my last phone call I managed to get someone to admit that it just might have been lost in the post.

I know you're not Esther Rantzen, but is there anything you can do to help. I like the fact of such a good game...
Michael Trotter, Jacksonville, Texas

Do I look like Esther Rantzen?

Anyway, as your Miles Better Software's letter is about up in your order and it seems that the trouble was that your cassette interface was having problems coping with the new "fast" tapes, is anyone else out there having trouble with the Tapes-targed loader? I can't be hearing from you... Ed

For Cobal, Read Comal

I'm writing to try and help all MasterMind fans in Middlesborough who write to Missives (1984, issue 6). He asks if there is a version of COMAL, by the 64.

Well, in the field of my knowledge, the nearest version of any language is COBOL, and one that is available for the 64 is COMAL (Common Algorithmic Language). This similarity of the name, this coincidence that you'll find a COBOL, but it also includes features that make use of the 64's excellent sound and graphics capabilities.

On a recent course to enable me to teach computer studies, I was given a series of sample programs in several languages, including COBOL. The funny thing was that I was able to type the COMAL program straight into the 64 — with COMAL loaded in virtually as if it was! Another point worth noting is that COMAL is an excellent language for teaching others how to program — if it's result, much easier to demonstrate structured programming, it's also the language that's taught in schools in Denmark, Sweden, Ireland and Scotland. Conversations will allow me launching a test cartridge, containing COMAL, for use on the 64 that'll give 80K of usable RAM! But if you can't wait until then — write to the ICRPU.

COMAL, man! Sean Granger, 73 Moorhead Way, Derrymore, Merseyside, and let's remember the language is a learn disk for you. Of course, you'll have to supply a blank disk and the return postage.
Geoff Crowther, Leicester

Steve Geoff, that's a real one for my readers wanting to get hands-on experience of COMAL, before Commodore releases its cartridge. But do remember to send a blank disk and the return postage! Ed

Down in the Dumps

As a regular reader of Your 64, I am writing to you for advice. My problem is that I'm unable to dump screen graphics of commercial games to my MPS 801 printer. I've had a few attempts at the code myself and I'm beginning to get the impression it cannot be done.

I ended up getting hold of the Tony Hart Am Master program, but I'm sorry to say that I can't even get a printer dump from the demo program! And if that wasn't painful enough to admit, the same thing applies to Talent's Planetania II.

This may sound like a silly question... but there isn't anyone out there who happens to know of a commercial program to accomplish this small feat? Of course, if anyone's clever enough to have written a routine themselves...
Arthur Storer, Llanelli

There must be someone out there who can come to Arthur's aid... Send your advice to Missives, Your 64, 14 Rathbone Place, London W1P 1DE — and there's a special software supplier for the first one received that works. You'll also get your program published in our fair magazine — or start laying away but call it.

Stone Me!

I was interested to read your article about Gordon Ashby and the Robot Workshop's 1984, issue 6.

At the moment, I'm working for the Playbus Computer Project, a group that takes computers to local youth clubs, libraries, playcentres and so on. Anyway, to cut a long story short, we're using LOGO and obviously, writing in the market

for a turtle. We also have a group who are interested in programming a robot — it's even been suggested that they build one from scratch!

So, after reading said article, I set out to find the Robot Workshop, following the strictly details in your article. But after a two-hour search of the area that could possibly be described as within "a stone's throw" of Earl's Court? (which isn't South London, by the way!) I had to admit defeat. I couldn't find the place and nobody I spoke to had heard of it.

OK Ed Powell! If that really is your name! — where was I going wrong? Perhaps there really is an Earl's Court in South London...
Jan Miller, Hammersmith & Fulham Playbus Association

Well, let me just have been really close to the Robot Workshop. It's actually at 137 Earl Road, London SW8 5PS (Tel. 01-273 8871), place at 794, as regard anywhere south of Rathbone Place as being somewhere in South London? And how you go looking for somewhere in Earl's Court, I'd suggest you stop throwing stones and give us a call on the 794 Helpline (Tel. 01-628 2010, 14).

Printer Problems

I wonder if you could help me with a query concerning the use of Commodore printers and plotter/printers.

At the moment, I'm using a VIC 1000 graphics printer for things like drawings and so on — but I'm looking to getting hold of a printer/plotter eventually. Now, I know that the plotter is slow, I have a my printer is personal computer version 4 or 5 printer and plotter. Does it mean I have to unplug the 64 each time I want to use a different device?

Is there a "better" available that would enable me to connect both devices to the 64 at once? I can't be the only person with this problem...
John Richardson, Plymouth

It certainly is possible to have both the printer and plotter connected to the 64 at once. All you have to do is plug either of the devices into the back of the 64, and then plug the other into the one already connected. Both printer and plotter have input and output cables. Ed

MISSIVES

Just Like That!

Here are some hints and tips for a few of my favourite games.

Arctus challenge: Level 3. Stick to the edges of the starway and tip it out of gaps when necessary.

Level 3: Stop just inside the door of each room but make nothing enter a small alcove or hallway you can't escape from if you're trapped.

Then decide your escape tactics according to the layout of the room. Level 4: The corridors. If there is more than one animal in your path and they are very close together then keep jumping and you should get through. Level 5: The planets. Wait just off the screen for a gap and when one appears, charge! Give a lot!

Miller Mans: On the cross roads, it is possible to put off the screen, to the right and disappear. The only trouble with this method is getting back to re-entr but to solve this PC2000 Model 256 before you type "G156000". This will give you infinite lives.

Scramble (Amiga): In the sector finally, go to the extreme left of the screen. This

gives you a much longer time to dodge the fireballs.

Ben sector finale: put your spaceship as far to the right as possible and when you get back to go up you have some leverage to allow you to do this. Once you have pulled back, push it forward again.

Planet Patrol: Go to the top of the screen and let the aircraft pass. Then go after them and shoot them down.

Julius: Road: Many people do not seem to be able to cross the stream as here's how. The capital letters are the words to use, **OPEN** the **DOOR** using the key in the stream, in the bedroom, and outside **CLIMB** **BUILDING**. On the roof there is a piece of wood. **GET WOOD** and climb down. Go to the stream and **DRIVE WOOD**. The wood will form a bridge.

CROSS the **BRIDGE** and you're over.

Does anyone know how to get the jet to water the plant? I'd so glad they write to me via this magazine.

Revenge of the Mutant Carrots: There is a cheat mode on that Type **GOATS** and the message "cheat mode operation" should appear. To

leave a stage hit the space bar. Here are some tips for those of you who don't like cheating.

Day: Silcock: Stand roughly in the middle and most of them will miss you. If one should approach then duck.

Sahney and the Postulant: Forget Silcock! Just hit the postulates and you can get 70,000. This book is a nuclear free zone. There are two approaches to this. (1) My method — go to the far right of the screen and keep firing off screens — this will keep the subterranean off and you will find that the **CMD** again (and not to fall on you). (2) Left Hitter's method — Build up the phone boxes on the screen and you will find less **CMD** signs (all people appear on the screen).

International soccer:

Shooting: Either get right up to the goalie and if he dives (and if he does) put it in the net after he's dived (on the lower levels go past him and score). Run diagonally across the goal area and then turn and shoot. If you are on target you nearly always score as the goalie does a straight jump.

Goal kicks: Go to the edge of the screen and, as the ball is

kicked, start to run. You should, if you think it well, be running with the ball somewhere above you giving you a good chance of getting it.

The Hobbit: To escape from the Goblins' dungeon, surround Thrór or Gandalf to "open window" and finally to "go through window". You will probably find these work best as three separate commands.

To escape from the mine cellar in the (Bowerland's palace, kill the hutter with the sword, empty the barrel or drink its contents (not advisable as you become drunk!), be a rope to it, carry it if you have Thrór tell him to get in it and, throw it through the trapdoor and jump.

Toby Hughes:
Happens, Sunny, RAG 200

Well, that's it up to be with a bunch of software — watch out for the Postman. Toby's representative has taught their way through to the far reaches of a game, write to avoid loss or tactics, check out Sonnetaphia Open Access this issue. Ed.

The answer to your pro



That's one answer, here's a more practical one - BREDEN'S BASIC

Much as we all love the Commodore 64 for playing games or running our business software on, when it comes down to the nitty-gritty of learning more about the computer and doing some programming, there is much room for improvement.

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THIS
WEEKLAST
WEEK

YOUR TOP TWENTY



1

10

GHOSTBUSTERS
ACTIVISION

INSTEAD OF USUAL, WE'VE
SET GHOSTS IN THE TOP
SPOT. SAME OF THE YEAR —
BUNCE! NO MORE!

2

1

INTERNATIONAL FOOTBALL
COMMODORE

KICKED OUT FROM THE TOP OF THE
SOFTWARE LEAGUE — THE SEASON'S
NEARLY OVER!

3

3

DALEY THOMPSON'S
DECATHLON OCEAN

DALEY ALMOST CAN DALEY
KEEP HIS POSITION NOW THAT
SUMMER GAMES ARE
APPROACHING!

4

7

JET SET WILLY
SOFTWARE PRODUCTIONS

WILLY LOOKS SET TO JET INTO
THE TOP THREE. WITH
YOUR HELP, OF COURSE!

5

2

BEACH HEAD
ACCESS

IT LOOKS LIKE THIS YEAR'S
GOING TO BE A BANGBUST —
BEACH HEAD'S SURRENDERED
ALREADY!

6

NEW

SUMMER GAMES
QUICKSILVA/EPYX

SUMMER GAMES SETS A NEW
OLYMPIC RECORD FOR THE
HIGHEST NEW ENTRY!

7

NEW

IMPOSSIBLE MISSION
CBS/EPYX

THEY SAY THIS ONE'S
IMPOSSIBLE — HAVE YOU
CRACKED IT YET?

8

8

THE HOBBIT
MELBOURNE HOUSE

C BEEN YOU LOT — WHO'S
NEXT THE HOBBIT HARRY?
GRAB YOUR VOTES
NOW!

9

9

HUNCHBACK
OCEAN

WE HAD A HUNCH THIS ONE
WOULD STILL BE HANGING
AROUND IN THE CHARTS.

10

13

FOOTBALL MANAGER
ADDICTIVE GAMES

"THIS GAME ALWAYS MANAGES TO
BUNCE BACK EVERY YEAR
AND THEN — BOOM! LAME!"

11

NEW

RAID OVER MOSCOW
US GOLD

AN OBVIOUS TITLE FOR A
COMBAT AND GAME
AND A FAVORITE AT THE
WHITE HOUSE!

12

6

TALES OF THE ARABIAN NIGHTS
INTERCEPTOR

A BIG DROP FOR THE ARABIAN
NIGHTS — WHAT HAPPENED,
DON'T YOU LIKE THEM
ANYMORE?

13

NEW

ZAXXON
US GOLD

A GAME THAT'LL PLAY HARD,
WITH YOUR NERVES!
GOOD TO SEE IT BACK.

14

NEW

THE STAFF OF KARNATH
ULTIMATE

A NEW ENTRY THIS MONTH —
CHECK OUT THE Y&A WEGA
REVIEW THIS ISSUE!

15

NEW

VALHALLA
LEGEND

THE WIKING ARE BACK WITH A VENGEANCE!
WE WARNED YOU THIS
COULD BE A LEGEND!

16

5

REVENGE OF THE MUTANT
CAMELS LLAMASOFT

AN AWESOME GAME
FROM MAMBA, YOU'D BETTER VOTE
FOR IT — CAMELS IS ALWAYS OUT
THEIR REVENGE!

17

14

FORBIDDEN FORCE
AUDIOGEN

"LEADS THE REST IN THE CHARTS" — MARCOS
HUSSES. SO WHAT'S IT DOING
AT NO. 17, MARCUS?

18

NEW

ALIEN
MIND GAMES

ALIEN'S POPPED INTO THE
CHART FROM NOWHERE.
SEARCH, MY STOMACH!

19

NEW

MATCH POINT
PSION

PRIOR SCORES AN
ACE OUT OF SEASON
WITH THIS WIMBLEDON SIMULATOR.

20

NEW

TAPPER
US GOLD

A GAME THAT'LL
SOON BUILD UP YOUR THIRST!
CHEERS!



Here at P64, we'd like to thank you for all the support you've given us in the compilation of our unmissable Choice 20 chart. But don't think for a second that we're going to stop it — rather, the idea is going to be taken further! Take a look at the 'new improved' coupon on this page and you'll begin to get an idea of what we want you to do ...

First off, though, don't get excited if all you want to do is vote for your favourite five packages and nothing else. That's easy — just fill in the left-hand side of the coupon with the game details you would normally; this data will be used to create our chart as usual. However, now look at the right-hand side of the coupon — the exciting bit!

THE CHALLENGE

All we're asking you to do here is tell us your highest score for each of your five favourite games. All scores must be verified by a witness (who will need to sign the coupon before you send it to us), and accompanied by a small photograph of you — a black and white passport photo would be best! Of course, once we've got your photo, there's no need to send another!

Then, once all your scores have come in, we'll be telling you what the highest scores are for each of the games in

WHO DARES WINS!



How do you rate yourself as a games player? If you reckon you're pretty good, tell us your high scores — and we'll see if we can make you into Y64 games consultant! Read on ...

the chart — alongside the faces of the top five games players who've managed to crack up the high scores. It would, of course, be very easy to 'fix' the chart by lying

about your scores — but if we don't help you! If you give a ludicrous score, it'll be checked ... and, if you achieve one of the five highest scores, you run the

risk of being invited down to the P64 offices to prove it. And we're not calling the P64 Chart Challenge 'Who Dares Wins!' for nothing — we're looking for the best games players around — and it could be you!

THE WINNERS!

Those chosen to battle it out on the psychics in the P64 offices will be offered against each other on the game they claim to be so good at. We'll be talking to the players as regards their tactics, and consoling the loser with a bunch of software to walk away with. The winner, on the other hand, is elevated to the position of an official P64 games consultant — we'll be looking to this growing body of crack games players to 'second opinion' our major games reviews in future issues!

Obviously, some games are easier to win but a high score than others. Amassing a few thousand points in a 'shoot 'em up' game's far simpler to tell us about than your highest score in *Snaf* or *Karnak*; using the latter example, we'd be looking for a time before midnight (computer-time, that is) that you managed to finish the game. But don't panic! We're getting everyone who's involved with P64 at the psychics next month to give you some scores to aim for!



CHART CHALLENGE

Complete this coupon and send it to Chart Challenge, Yards 14 Robinson Place, London W6P 1JG. (Please note you include a £4.00 photo of yourself if you're going for the high scores!)

My top five games are:

1.
2.
3.
4.
5.

My top scores are:

1.
2.
3.
4.
5.

Independent witness.

Name

Address

Postcode

Occupation

Signature

And this is who I am ...

Name

Address

Postcode

Phone number

Signature

Stick your photograph here if you are going for the high scores chart!



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MUSICAL MATTERS

Where OCT is the octave number (0-7), and N is the note number (0-11), according to the following table:

0 C	8 F#
1 C#	9 G
2 D	9 G#
3 D#	9 A
4 E	10 A#
5 F	10 B

This assumes that Middle C is at 256 Hz (cycles per second). The formula is based on the relationship between consecutive octaves (2:1) and consecutive semitones (2^{1/12}:1). Thus the frequency of the C above Middle C is 512 Hz, and there are twelve semitones in an octave. The key of C (the white notes on a piano) consists of the sequence of notes:

... C D E F G A B C ...

These are the notes that are harmonious to the ear when played together with the base note, C. Two notes sound in harmony if the ratios of their frequencies can be written as the ratio of two simple integers, but you will note that the ratios of the notes in our sequence all contain twelfth roots of two! Nevertheless, in each case a very close approximation for a harmonic ratio can be found. For example:

$$\begin{aligned} \text{B/C} &= 2 / (2^{1/12}) \\ &= 1.05946 \dots \\ &= 3/2 \end{aligned}$$

This is called a fifth interval.

Envelope Shape

The method of playing a note is to set the envelope shape of the waveform. This

has as much effect on the sound of a note as its frequency and, together with the timbre or overtone structure of the note, governs the instrument with which we associate a particular sound. SID gives the user control over attack and decay rates, sustain levels and the release rate, as in the diagram below.

The solid line represents the time for which, say, a piano key was depressed, and the dashed line the output volume. Initially, the piano string vibrates rapidly with a sudden burst of energy which, almost as quickly, dies down to a steady level, until the piano key is released and the note slowly fades out. The rise time of the note is given by its Attack rate, A, the fall time by the Decay rate, D, the volume by the Sustain level, S, and the time it takes to die out by the Release time, R. The appropriate values must be POKE'd into the high/and low bytes of registers 5 and 6 of the SID chip. The following expressions show the process:

$$\begin{aligned} \text{POKE } \$D, (A*16)+3 \\ \text{POKE } \$E, (D*16)+4 \end{aligned}$$

Each of the parameters A, D, S and R is in the range 0-15. By setting the attack rate high (slow) and the rest of the parameters low we could achieve the effect of a piano note played backwards, such is the flexibility of the envelope commands.

Timbre

The timbre, overtone structure, or frequency spectrum of a note is its other major property. The way this is synthesised on the 64 is simple but effective. Three waveforms are available (other than noise). The triangular waveform contains only the odd harmonics (multiples) of the fundamental frequency of a note, and these are inserted in inverse propor-

tion to the square of the harmonics in direct proportion to the reciprocal of the harmonic number. The pulse or square wave contains all the harmonics of the fundamental frequency, their proportion depending on the mark-space ratio (pulse width). By mixing these waveforms, and then filtering the combination, almost any overtone structure you desire can be achieved.

For Voice 1, the fundamental structure of the note is defined by setting bits 4-7 in register 4. Bits 1 and 2 control auto-synchronisation and ring-modulation. Waves 1, 2 or 3 are filtered by setting bits 0, 1 or 2, respectively, of register 23. Bits 4-7 hold a number from 0 to 15, which governs the resonance of the filter. Bits 4, 5 and 6 of register 24 switch on lowpass, bandpass and highpass filtering respectively, in any combination. The resonance governs the bandwidth of the bandpass filter (amount of medium frequency sound transmitted). Turning the least and 15 the most) and the output of the other two filters. Bits 0-3 hold a number between 0 and 15 governing the overall volume of the synthesiser. The filter frequency is an eleven bit number held in register 21 and 22. Finally, if the pulse waveform is set, the pulse width can be set to any number between 0 and 4095 with the low nibble in register 2 and the high byte in register 3.

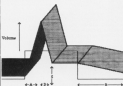
Playing a note

To actually play a note it is essential to do three things. Firstly, switch the gate of the control register off. For Voice 1 this is done with:

$$\text{POKE } \$D, 4+((\$D \& 3) \& 1) \text{ AND } \$D$$

Secondly, switch the gate on. This will start the note. It is equivalent to striking the piano key:

WAVEFORM ENVELOPES



Using the SID chip, you're given complete control over the attack rate (A), decay rate (D), the volume of the sustain (S), and the release time (R). Using our program, the output of the POKE's on the high and low bytes of registers 5 and 6, each of the SID chip with appropriate values of these parameters, in the above diagram, the solid line represents the time that a piano key was held down in relation to the output volume.

WAA-WAA

```
10 REM WAA-WAA
20 A=0:G=0:S=0:R=0
30 OCT=0:PA=0
40 L=0
50 CH=0:REM TRIANGLE WAVEFORM TRY NOISE
60 CR=0:0:0
70 SID=C4*2*F*128/((1+0.004*POKE5(0)+1)*PI*8183)
80 POKE SID+4,CR
90 POKE SID+4,CR*2
100 POKE SID+4,CR*3
110 POKE SID+4,CR*4
120 POKE SID+4,CR*5
130 POKE SID+4,CR*6
140 POKE SID+4,CR*7
150 POKE SID+4,CR*8
160 POKE SID+4,CR*9
170 POKE SID+4,CR*10
180 POKE SID+4,CR*11
190 POKE SID+4,CR*12
200 POKE SID+4,CR*13
210 POKE SID+4,CR*14
220 POKE SID+4,CR*15
230 POKE SID+4,CR*16
240 POKE SID+4,CR*17
250 POKE SID+4,CR*18
260 POKE SID+4,CR*19
270 POKE SID+4,CR*20
280 POKE SID+4,CR*21
290 POKE SID+4,CR*22
300 POKE SID+4,CR*23
310 POKE SID+4,CR*24
320 POKE SID+4,CR*25
330 POKE SID+4,CR*26
340 POKE SID+4,CR*27
350 POKE SID+4,CR*28
360 POKE SID+4,CR*29
370 POKE SID+4,CR*30
380 POKE SID+4,CR*31
390 POKE SID+4,CR*32
400 POKE SID+4,CR*33
410 POKE SID+4,CR*34
420 POKE SID+4,CR*35
430 POKE SID+4,CR*36
440 POKE SID+4,CR*37
450 POKE SID+4,CR*38
460 POKE SID+4,CR*39
470 POKE SID+4,CR*40
480 POKE SID+4,CR*41
490 POKE SID+4,CR*42
500 POKE SID+4,CR*43
510 POKE SID+4,CR*44
520 POKE SID+4,CR*45
530 POKE SID+4,CR*46
540 POKE SID+4,CR*47
550 POKE SID+4,CR*48
560 POKE SID+4,CR*49
570 POKE SID+4,CR*50
580 POKE SID+4,CR*51
590 POKE SID+4,CR*52
600 POKE SID+4,CR*53
610 POKE SID+4,CR*54
620 POKE SID+4,CR*55
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750 POKE SID+4,CR*68
760 POKE SID+4,CR*69
770 POKE SID+4,CR*70
780 POKE SID+4,CR*71
790 POKE SID+4,CR*72
800 POKE SID+4,CR*73
810 POKE SID+4,CR*74
820 POKE SID+4,CR*75
830 POKE SID+4,CR*76
840 POKE SID+4,CR*77
850 POKE SID+4,CR*78
860 POKE SID+4,CR*79
870 POKE SID+4,CR*80
880 POKE SID+4,CR*81
890 POKE SID+4,CR*82
900 POKE SID+4,CR*83
910 POKE SID+4,CR*84
920 POKE SID+4,CR*85
930 POKE SID+4,CR*86
940 POKE SID+4,CR*87
950 POKE SID+4,CR*88
960 POKE SID+4,CR*89
970 POKE SID+4,CR*90
980 POKE SID+4,CR*91
990 POKE SID+4,CR*92
```

Utilising a triangular waveform, this program produces a nice 'waa-waa' effect. Try altering the value in L in line 40 to change the noise output.



How to teach your Micro a thing or two

Thousands of home computer owners have set to discover their microcomputer's potential to help with many of the problems and decisions that come up every day in the home or office.

Perhaps you have always promised yourself that you would teach yourself programming, but have been put off by manuals which seem to assume that you have spent a lifetime studying computer science and mathematics. Maybe you have looked at other computer books, but have yet to find one which is free of unnecessary jargon or where the program examples bear some relevance to real life and not space invaders.

Relax, your search is over!

The 'Learn BASIC' tutorials from Logic 3 are the latest development of a teaching method pioneered by Professor Andrew Colin and perfected

by testing on 3 generations of students at Strathclyde University. The 'Strathclyde Method' has been translated into 8 languages and used by over 800,000 microcomputer users.

'Learn BASIC' is a jargon free, step by step, course in computer programming, which explains everything clearly in English, not computer talk. In a matter of hours you will be writing your first programs.

'Learn BASIC' is designed for people who want to keep abreast of the computer age, for people who realise that understanding computers is a key to future success at work, at school, and as a parent.

Get 'Learn BASIC' and teach your micro how to be useful! (Available from major branches of W.H. Smiths, Boots, Laskys, Cerns, John Menzies and better computer shops nationwide.)



Please send me more information about

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The Art Of Noise

To enter this competition, you've got to have composed or arranged a piece of music using Commodore's Music Maker. Your musical segment should be not more than five minutes long, and it'll be best if you sent it to us on cassette (or disk if you're feeling fancy). Of course, all cassettes/disks will be returned as soon as the competition winners have been decided.

And what are we expecting you to play for us? Well, you tell us! You can come up with some wacky jingles, reggae, soul, pop, rock, opera or classical music — the tunes will be judged purely on their musical merit, so the ball's firmly in your court.

Judging the competition, we'll have a top-notch YIP from Commodore UK, one of the original programmers of Music Maker from Music Sales Ltd and, of course, the Y64 Editor. Inspiration may take a while to



take root and flower — especially if you're going to the prime stone labyrinth which came to request from modern musicians — so, you've got two months to get your act together. OK, it's got your wires together? Well and go for it...

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The best piece of music will win a brand spanking new Commodore portable 6000! Of course, everyone can't be a winner, but we're ready with prizes for 50 runners-up — so don't feel put off sending us your entries. Runners-up will receive either a Cartridge 3-in-1 disk or 40Ked artist, Goshard Star Ranger or all three Infocom adventures (Zork I, Zork II and Zork III).

And don't forget, you've got until May 31st, 1985... so you've got time to make your entries really good! Send your entries to Music Maker Competition, Your 64, 14 Raffleway Place, London W1P 1DE.



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Of course, if all you reckon my superb musical talents are worth a mere runners-up prize, I'd like the package sent back to the address below! (Points as required).

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And On That Note!

If you haven't posted yourself a copy of Commodore's Music Maker yet (and you'll certainly need to try your hands on the package to enter this competition!), it's available from all good computer stores and it'll set you back £29.95. For a comprehensive review of Music Maker, check out Y64 issue 8, any queries regarding Music Maker's availability should be directed to Commodore on (0384) 805555.



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ISSUE 6

• Commodore's Music Maker • Ghostbusters: the game • We put Commodore's Plus4 and C-16 on the bench



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SCRAMBLE!

Despite its name, this is not a game for bunglers! As Craig Flaxton and Sue Denham find to their cost, *Raid on Bungling Bay* isn't just another shoot 'em up affair, but a study of tactics.

100

The first time out with *Raid On Bungling Bay*, you may think you're up to your eyes in just another shoot 'em up classic. But if that's the way you're going to approach the game long-term, you may as well forget it! Shooting planets and boats, and bombing the cold factory, might relieve

few frustrations you've got lurking around in your subconscious, but if you want to make your "wings", you'll have to reach to within.

Check Answer

Sampling This report is quoted little. Substantive work is placed in correspondence in German publications.

... until it was overrun by an empire of evil tyrants. Their aim? To destroy humankind ... as usual. To do this, they're constructing the ultimate war-machine, run by computers and robots, and defended by an almost impenetrable network of energy guns, radar and ships.

These challenges are, of course, "universal"

Stretch and for the gas implementation -- they're automatically increased if you use Internet access, while most of the bandwidth they live in, and almost certainly they live in very tight parts of the network. Already, people should address the tight parts of the network to address the things that are at all times, and there's much, actually, taking the gas out, and there's a lot of -- and you're taking the gas out, and it's a lot of the things that are at all times.

Is your home accumulating others all these positive things have been leaving town? Well, this town's the landing strip — and, if you're lucky, you'll find a couple of planes you can fly home (and) practice on. But don't keep yourself too busy — the extra points you get make you grow the money time to build up your home's money too.

If you should really notice a change in your life, you're experiencing the effects of the natural world of stress. It's worth noting the position because if you feel, you are still in the same and when you are in your current state — that's a good sign — you'll notice distance between you and your

The video installations will sound and smell—and also I suppose to be much like, because they have grown up with the atmosphere of the home-making studio. You go to the ground. When people are in the room as far as thinking the video, that the new situation may not be experienced in the same way.

The money factor that is most at risk of being perceived as a bribe is the money factor (MFR). The MFR is a measure of the cost of borrowing money. It is calculated by dividing the interest rate by the number of payments. The MFR is a key factor in determining the monthly payment on a loan. The MFR is also a key factor in determining the total cost of a loan. The MFR is a key factor in determining the monthly payment on a loan. The MFR is a key factor in determining the total cost of a loan.

But that's the worst part. Almost
straight away for a couple of generations
of the family, male voices disappear.
Ingersoll: You'd almost think that they're
something very like (sings of "Sweet, Sweet
Lorraine"), or you're afraid you're doing
something you can't take advice, you'll
lose it all. I know for sure when you
speak, inside, it's your identity coming
back. You're almost always the person
you're afraid to speak to — but if
they manage to take your personality
away, you're dead.

[illegible]

Five small-scale carriers are promised to sail again with the government and Florida, which is paying a "war" surcharge to the state and another "flag" fee. The third will also have to sail to port near the shore, because as well you can blow the ship off and then fall the first bottom. When you take off, following party, until the next engine — you'll find your last friend's at the bottom, as it can be found here.

There you are, standing your own business, and you that yourself accomplished it. You're a great person. That's not an empty word, honey — just someone on the same level with you. I guess that's it for me, for the time being, and then again, I'll stand all that good thinking on you go — the whole thing, you're a little and you're a whole new person to me, but don't think, you'll find that some day we'll understand the whole thing, it's a whole lot of something and all the way to that, you're a person.

[illegible][illegible]

SCRAMBLE!

impenetrable because, as you might have guessed, it's your thankless task to halt the war-machine in its tracks.

When you first start, you're presented with a plan view of Bumping Bay — a number of islands scattered haphazardly in the ocean. You control a helicopter on an aircraft carrier (and, once you've taken off, you're able to fire missiles and drop bombs; you're granted a limitless supply of missiles, but only nine bombs ... so use them sparingly).

All Mapped-Out

When you begin the game, it's worth sacrificing a few lives to fly around, building up a mental map of your surroundings (an on-screen arrow will always indicate the position of your aircraft-carrier should you need to re-fuel or pick up more bombs).

The first thing you'll notice is that there are quite a few guns aimed at the islands that, guided by the radar installations, try and shoot you out of the sky. Avoiding these, you'll notice large buildings that are obviously the factories manufacturing the elements required for the war-machine: there are six factories in all, and you'll need to bomb each of them to destruction — this often takes more bombs than you have (ah-ah-ah, so don't expect too much from one visit).

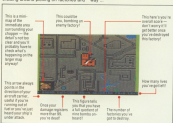
Of course, once you've destroyed a factory, the game itself takes on a new aspect — you'll be dogged by a number of white fighter planes, and your aircraft-carrier will be menaced by various black bomber planes. Really!

But that's not all ... destroy three factories and those mid-mounted gun emplacements start shooting off heat-seeking missiles at you! And if you thought your presence in Bumping Bay had so far gone undisturbed by the evil tyrants, you'd be wrong! While you're cruising around picking off factories and

dogging enemy fliers, they've been busy building a battleship ready to launch against your aircraft-carrier. You'd be well advised to check this out on your travels and blow it up before it's set against your meagre defences!

Tricks 'N' Tactics

By now, you've probably got the impression that there's no way to beat the game! Well, you're nearly right — it's not easy, but there's a few tricks and tactics we've given you that'll actually help you on your way ...



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ROUTINE ADVENTURES

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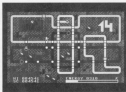
Systems
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Advent 85, 100

It seems as though home computer software is taking over editors: *Final Street* left off *Take Eureka*, for example — this was launched with all sorts of 'hype' and a promise of £25,000 to the first person phoning through with the game's hidden message! Hm.

Getting back to the game itself, *Eureka* is actually split into five different adventure components, each presented by a rather uninspiring arcade screen. Playing this arcade game is mandatory — which will not please the true adventurers out there; indeed, the points gained here determine your fighting strength during the adventures. It has yet to be proved just how vital it is to get those vague points — and if you do need thousands of points to get through, the £25,000 is pretty safe! It's not that they're difficult to beat — just very boring!

The aim of the game is to find parts of a 'Temple of Talanor' which mysteriously got transported through time and space when it was under analysis in the N4-B4 space lab! The five adventures take

you all over adventure games, read this page without delay! Why? Well, not only will adventure expert Jack Cots be taking a good look at *Eureka* and *Return To Eden*, but there's the inception of the Y64 Adventure Helpline — and that's going to be invoking you!



Eureka's Eureka gives you the adventure games in one — and if you manage to crack this first time, and find the hidden message in the first year, you're in with a chance of winning the £25,000 prize!

place in Pre-Historic, Roman, Victorian, World War II and Modern Times, you may only enter the fifth part having solved the preceding four! The graphics are of a chunky nature and very effective — except that you're not able to turn them off! The occasional bursts of music are also very good, but those

can't be turned off!

The instruction booklet that comes with *Eureka* contains additional tidbits in the form of verse, pictures and even the odd hidden code in the decoder boxes! The instructions you're given are thin on the ground, but adequate. The game's

vocabulary is not all that extensive and responses can be often very misleading — be certain to ensure that you've read obvious signposts before giving up on your intended course of action!

It's best to cut your teeth on the fifth episode. This offers a greater chance of playing alive long enough to gain some experience of how the game functions. The program doesn't support a 'SAVE character' routine, so if you die you'll have to go through the whole thing again — very tedious!

Eureka may not be of the best adventures that you'll ever come across (and the arcade interfaces are ghastly!) but at under £3 each, they're certainly good value — and just think about that £25,000!

RETURN TO EDEN
LEVEL 8/PS 85

Systems
Amiga 500/plus
Advent 85, 100

So, Level 8 has eventually succumbed to producing its first graphic adventure! And the company has done well — it's amazing what you can cram into the Ollie 84's memory when you really try!

Although this is the follow-up to *Superstar*, it's not necessary to have completed (or even played!) *Superstar* to enjoy

Y64 ADVENTURE HELPLINE

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Have you ever ended up stuck in a room full of locked doors ... only to find that the key was under the mat all the time? Annoying, isn't it?

Well, here at Your 64, we're looking to set up a 'write-in' service for readers who've sorted out the solution to a particular problem in a game. We'd also like to hear from anyone who wants help with various stages of an adventure!

You'd be surprised how many letters we get from readers who've invested a tonner in an adventure, only to find they can't ever make it out of the first location! Well, the first step is to phone up the manufacturer — companies are usually happy to help you out if they think you got into

However, if the publishers give you no joy, then that's the time to look to your fellow Y64 subscribers to give you a hand. Simply fill in the coupon on the left of this page and send

it off to the address given. This way, once we've published your particular trouble, if another reader's already sorted out this problem, he or she will be able to ring you up and put you out of your misery. Who knows — you could make it feasible!

Of course, if you've cracked a particular adventure, you could offer to help any other readers solve their problems. Simply fill in the coupon below, giving a time that's convenient for people to ring you (and that's all there is to it if you're feeling shy, though, why not write and tell us your hints or tips for an adventure and, if it's published, we'll send you one of the latest adventure packages on the list!

Enthusiastic adventurers should write to the Y64 Adventure Helpline, Your 64, 14 Rathbone Place, London W1P 1SL. Join me for some computer reading next month!

REGULARS PLEASE REMEMBER The use of scissors on this coupon may be hazardous to this magazine's health — please use a photocopy instead!



Return to Eden is not only the follow-up to Level 9's *Secretlab*, but it's also the company's first of two big budget graphical adventures.



Complete with the usual wonderful puzzles, *RTD* supports a wide vocabulary and exhibits a great sense of humour.

Return to Eden. Each scene has its scenery which is 'drawn' quite rapidly to the screen. If you're relaxing your steps and you haven't time to check out the scenery, you can, of course, turn off the graphics. And, just to show that Level 9 understands the frustrations of adolescents, it's included routines allowing you to take a character's status and position to light or dark. Level 9 — we think you!

You get to play the games here, *Kimblebot*. And, just to prove your heroism, you've just saved a giant spaceship full of colonists travelling to Eridani. After a certain disaster. Unfortunately, irritating your rescuer for these ingratitude people, you've left them with the impression that you're opposed to their mission and a murderer to boot!

You could, of course, escape to space ... but *Snowball* will get you (and that's another story). The time you escape is a

bit of a long way down to the surface of the planet which has been prepared by robots for colonisation. You only hope is to contact the robots and explain your problem. But, as you might have guessed, the last thing these mechanical monstrosities want to do is relinquish their power to a mere human! You soon find that the robots have already planned the local animal and vegetable kingdom — it's only a matter of time before they get you!

As with many adventures nowadays, this one's split into a number of separate scenarios — the next, only attainable once you've solved the last! And *Return to Eden* is full of these wonderful puzzles that, once solved, make you want to kick yourself for not having seen the solution earlier! The game supports a large vocabulary and the programmer's big sense of humour is more than evident. Thoroughly enjoyable ... and highly recommended!

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Fitting firmly into the 'arcade' adventure category, *Staff Of Karnath* is Ultima's first venture into the 64 software market. It's also the first game not to have appeared already on the Spectrum.

THE STORY SO FAR ...

The plot is a little complex — but, then, what game doesn't have an involved storyline these days? Apparently, there was once a powerful wizard, Karn, who managed to hide a magic staff with some-thing powerful deep within the bowels of his castle. You're told the staff's hidden in an obelisk ... but you can only open it with a magic key: the key comes in the shape of a Pentangle — a five-pointed star toy! And to make life just that little bit difficult, it's split into 16 different pieces that are all hidden around the castle.

The hero of the piece, and perhaps set to become the 64's Sable Man (aka Sable Wolf and Underwilde on the Spectrum), is Sir Arthur Pendragon. The date is April 30th — Hallowe'en! Night to all you would-be devil worshippers — and the time is 8pm. At midnight, at Hail (literally!) will break loose! But, if you're following the plot so far, the idea is that Sir Arthur must assemble all the pieces of the Pentangle and destroy the staff just in the nick of time! Unfortunately, many hideous creatures guard the pieces of the Pentangle and all are capable of draining the life energy from our hero. Sir Arthur's only defence is to be nimble-footed, or to cast one of his ten magic spells at his disposal. However, the correct spell must be chosen for each particular creature or it'll do no good at all. And, as each spell you cast decreases Sir Arthur's life energy by one (and he starts with 100 points), you'll have to learn the effects of each spell quickly if you're to survive!

ON DISPLAY

The screen display is so good that it warrants some good, old-fashioned enthusiasm. The player views the castle as if it were a doll's house, with the floor of the house cut away by judicious use of colour and shading perspective is achieved in a very realistic fashion.

Using the joystick, you can move Sir Arthur left or right and, as it were, into or out of the screen, as he approaches the limits of the screen, the room scrolls smoothly with each further step to reveal more of the castle. The rooms are sometimes wider than one screen, sometimes smaller, and are separated by walls with doors — 80 windows here. To open a door, Sir Arthur has only to walk up to the handle and — *Open Sesame* — it swings open; once Sir Arthur's passed through, the door slams shut. Open doorways are staircases leading up or down one floor while closed ones lead to the room behind. And, if you want to be really impressed, take a look at the contents of the rooms — especially the flickering candles and flame effects in the fireplaces.

STAFF PROBLEMS

Tackling each piece of the Pentangle is a bit like playing 16 separate games — some pieces are won through the usual

It's unusual to find a game that combines the very best in arcade action together with the mind-numbing problems you'd find in adventure scenarios. But, as Ross Holman and Steve Broadhurst find out, *Staff Of Karnath* is just such a game! But then, what else would you expect from a company with a name like *Ultima*!

SPELL BOUND

'bodge and hack' methods associated with the arcades, others are a matter of being as fast with adventure games, whereas the rest are you have to go through the old old Pentangle piece in The Waiting Room.

You'll also have to watch out when you attack the nasties. It's often worthwhile hanging around outside certain rooms, selecting the correct spell — rather than rush in blindly, hoping for a lucky break!

The game itself is a little tedious — the journey back to the castle does get a little repetitive after a while! But, all in all, *Staff Of Karnath* is easily one of the most complete games I've ever played. Given knowing where all the pieces are and the spells you'll need to collect them won't help you very much if you are planning on completing the entire adventure — believe me, I've tried!

More here over the Y&A's complete map ...

DUNGEONS AND DRAWING ROOMS ...

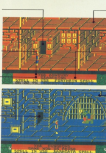
This is the door going down — you can tell because it's coloured in solid black.

This line tells you what room you're in.

The word 'DUNGEON' tells you that you're about to find some of the Pentangle.

This doorway leads up to the next level; look closely and you can see the ascending steps.

You start at 8pm and you've got to collect all the Pentangle pieces by midnight ... or at least as close!



Archie features in this game sometimes look in on the levels above, giving you a sneak preview of what's going on!

Here you've triggered the 'fire' spell, which is your general all-purpose weapon in the Castle.

You'll know when you're in the dungeons because the walls have been decorated in a way that is different to the other levels.

On either side of the screen, there's an outline of the Pentangle; notice how that you've already found one of the pieces.

When your energy level reaches zero, you're dead!

THE COMPLETE MAP OF CASTLE KARNATH



THE BATTLE
The Battle of Karnath was a decisive victory for the forces of the Emperor. The three kingdoms of the Empire appear to be united once again, and the Emperor's rule is secure. The three kingdoms of the Empire appear to be united once again, and the Emperor's rule is secure. The three kingdoms of the Empire appear to be united once again, and the Emperor's rule is secure.



THE THUNDER STORM
The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious.



THE THUNDER
The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious.



THE WEST TOWER OFFER
The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious.

THE GREAT WALL
The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious.



THE GREAT WALL
The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious.



THE GREAT WALL
The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious.



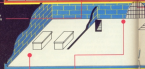
THE GREAT WALL
The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious.



THE GREAT WALL
The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious.

THE GREAT WALL OFFER

The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious. The storm strikes the castle, and the Emperor's forces are victorious.



➤ ACTION REPLAY



No. of players



Joystick



Joystick optional



Cassette



Disk

Welcome to this month's Action Replay, only to find me reading through the mass of cassettes that never quite made it to the review pages that follow.

Amongst the also-rans was *Discor: The Players* from New Generation Software. The idea here is to puzzle your carnie through a bad of gates, while avoiding such obstacles as rocks, motor boats and leavers (?) — and all this against the clock. One uncharitable soul around the 194 offices suggested that the programmer should be shot... but I wouldn't be so unkind.

Audogenic's *Alice in Wonderland* has been available on disk for quite some time, and now it's finally managed to drag itself on to cassette. Based more or less on Carroll's *Alice in Wonderland*, there's much falling down rabbit holes, drinking from magic bottles and playing of croquet. It's both extremely pretty and rather gamey — don't, expect a serious arrest from this one!

For quite a while now, someone has been bombarding the 194 office with verbal graffiti on *Edie Kid's Jump Challenge*. I've had posters, stickers, press releases — the lot! But it's left now to for Edie Kid himself to turn up on the doorstep! It's a shame the game itself isn't as entertaining as the promotion... on yet take, Edie!

Melbourne House's popular hero (it says here) Horace reappears in a game called *Hungry Horace*. And yes, yet another programmer (lacking of good ideas has decided to dig up the sitting corpse of Pezoman and feed him his already full fat just

Joystick junkie Steve Malone settles down to tackle the latest and greatest games software for the C64. Won't you join him?



Steve 'Joystick' Malone — Action Replay supporter

one more shake. To be fair, *Hungry Horace* is neither than yet average Pezoman clone, but does anyone care? (Answers are a postcard, please. Not.)

Gilsoft has released a series of adventures based around its *Quik* adventure writing utility. These are, *Alice in Wonderland* (set in a Pottery), *Diamond Trail* (set

in a city), *Scyllaria* (set in a scary territory), *Magic Castle* (set in a, wait for it, castle), *Minotaur* (set in who knows where), and *Devil's Island* (set on an island).

We've had a whole board of mini-adventures emerging blinking into the cold light of day in the Pottery. And it seems that Avalon Software is responsible for most of them! Snopand Potpourri are unimpressive little games for those too Game Life to shuffle a pack of cards, and *Autobahn* is OK for others too lazy to put a handle. But for those whose bank balances wouldn't allow them through the door of a Monte-Carlo casino, there's *Alouette* from Mr. Alan's Land's a French company. Unfortunately, it seems a mildly amusing way of harassing thousands of pounds. You'll think I don't expect much from any of them... so I wasn't very disappointed.

Over now to the 'old games never die, they just get to writer' department. Name from Romik Software is a game set in ancient Greece that has you hanging for dear life on a flying horse, trying to cope with a host of mythical monsters. Funny, but I'd never thought, just like *Defender*, only with different sprites. Still, the action's fast and furious!

Finally, a word or two about British Telecom's own (cheap) *Planet Star* label. Mr. Freese is only £2.50 — and retail price, it's worth the money. It's entertaining enough, especially seeing Mr. Freese's delightful walk. However, if you're not a shareholder of the company and can afford not extra, I'd suggest you look elsewhere.

QUESTPROBE: SPIDERMAN

Adventure International (C64)

★★★★★



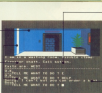
Hi there, true believers, from about a little web-slinging? Yes, it's time to tune in to the second adventure in a 10-part series starring the Marvel comic book character we all know and love. Part one concerned the death-defying antics of the Incredible Hulk... and now it's the turn of Spiderman.

We're told there is a common theme running through all adventures — sport, that is, from the constant juggling of Marvel Comics (Stan Lee was never a man to underestimate himself). On a far and distant planet, countless light years from Earth, a bunch of philosophers are running into trouble. They're being attacked by heavies, calling themselves the Black Fleet, and our merry muskies are hell-bent on success. The problem is, these philosophers are a peaceful crowd who've forgotten how to fight — all, that is, except one who is busily hoarding the powers of all the various super-heroes, rather like some interstellar butterfly collector. The object of the adventures is to somehow work out why.

In the meantime, however, it's a question of wandering the offices of the Daily Bugle and encountering Spiderman's best known enemies — Spidey's greatest foe you might say (Or not, as the case may be). Apparently, everything hinges around a

The graphics are drawn very well, and accomplish the task of making the game very similar to real-life Spiderman comic book.

Like best, the screen is kept wide open. The top window contains the graphics, the middle for opens forth the information on what is happening and the bottom window's screen is left clear for your commands.



Pressing the tab button for the window will do you no good at all.

This adventure allows you to make use of a very large vocabulary of commands — which means you don't spend the first half-hour of play wondering how to lock up an object! Regulars are generally fearful of 'sentence' — there's a 'hang' book available, but only if you write to the firm.

So, get a game of which has somehow turned up in my life.

This is the sort of adventure I like. Good graphics, friendly vocabulary and a subject I know something about. Packed in with the adventure is a comic book which

seems a passing resemblance to the on-screen action, it doesn't actually give any hints... but it does point you in the right direction. All in all, another game where the 'hang' have shown us it's how it should be done.

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Help: Don't keep the family and the hotel open to spite of the stressed health, man I still want to visit the place, the adventure, etc.

Abstract: The purpose of this study was to determine the effect of a 12-week training program on the heart rate (HR) and blood pressure (BP) of sedentary, middle-aged men. The subjects were divided into two groups: a control group and an exercise group. The exercise group performed a 12-week training program consisting of aerobic and resistance exercises. The HR and BP were measured at baseline and at the end of the 12-week program. The results showed that the exercise group had a significant decrease in both HR and BP compared to the control group. The HR decreased from 72 to 68 beats per minute, and the BP decreased from 120/80 to 110/70 mmHg. The control group showed no significant changes in HR and BP. The findings suggest that a 12-week training program can effectively reduce HR and BP in sedentary, middle-aged men.

JOLLY JACK'S RUN ASHORE

Follow Jack on his first night without coffee.

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Figure 1

QUALITY ENGINEERING



HENRY'S HOUSE

English Software £14.95



Following the path of the latest royal spy, software houses, who know is passing

handbag when they see one, have begun producing games based around the antics of Miss and Dr Jonathan Mordoc's Dr's (slab). Henry's House is an exceedingly pretty little game in which our royal hero ventures forth to explore the palace, meeting all manner of strange things on the way.

Henry's House is another of those endless platforms and ladders games that have our heroism picking up any number of unlikely objects in rooms after rooms — while avoiding the ghastly things that go bump in the night.

There are eight rooms to explore in Henry's House, these range from the

Clothes Cupboard to Henry's Creator Dungeon. Again most examples of this sort of game, there is a right way to go about collecting things without running into trouble, and there is a wrong way! The trick is, of course, to work out the right way! In this job, it's easy to become bored. If I see just one more version of Jet Set Willy, I'm going to have to reach for the Power Pits. Except ... this just happens to be one of the best examples of its type that I've seen for many a long day.

Having starred in such an unexpected winner, I guessy L'E Henry will now be given his own series. A star is born!

STELLAR 7

US \$24.95 £9.95



Remember Starzone ... the arcade game that has put battling with the special

outlines of tanks and where you are forever advancing on mountains which never actually get any nearer? Well, Stellar 7 is just like that — and what a coincidence, I hear you say.

The difference between this and Starzone is that here you are fighting your way to Krypton to intercept the evil Dr Onaxon. To get there you have to ensure the dispatch of the ten or so enemy tanks, satellites, planes and so on that get in your way. Points are lost from three, soon above the correct score and, hey presto, a bright and shiny star-like object will appear, all together now ... Aaaaah.

So what? This simple action will

hugewary you through to the next star system (it's easy to tell, the sky looks different) where more outlaws wait to do nasty business with you. And so it goes on. Create your way through seven stellar systems (hence the name, get it?) and you have reached Arcturus.

Actually, I find the risk with these sort of games is to sit ahead of whatever it is you're fighting for: these boys move much faster than you can. Assuming you have the knack, you'll find Stellar 7 really easy to play (at least at the lower levels), and it's a game that will bring tears of nostalgia to those who played their youth in the seventies arcades.

3D LUNATACK

Wheat Electronics £7.95



Meanwhile, back on the 3D 'shoot-em-up' we have 3D Consultants from Wheaton

Consultants. And — holy gasolines — it appears that a bunch of aliens known as the Seektaks (that's Seektaks backwards — godd!) have invaded the moon, as the commander of a squadron of laser fighters, it's up to you to destroy their base and save civilization (I mean, do I have to lobby P.D.?).

To lead the brave pilot in the fight against the alien menace, there are any number of assorted weapons and controls at his or her disposal — missiles that blast and lasers that fry. And you get a map that shows you're going, and a navigation computer.

I must say I found it tough getting the hang of this one. The aliens tend to come over the horizon and, although you

think you've got plenty of time to draw a bead on them, the game's actually awfully difficult to control (which might, of course, just be my ineloquence). Another problem of mine is that I like to be told what I'm supposed to be looking for. I spent the first thirty seconds of setting up moon orders before realising what they were! Flying the moon buggy is fairly easy, although the aliens seem to have a better aim and, once they appear, it's pretty difficult to avoid them.

For once, the graphics actually live up to the talk on the box and the microcassette is drawn in very good high-resolution.

SPACE SHUTTLE

Atariport £9.95



The latest contestant in the flight simulator stakes that stands ready for your admiring

glances is Space Shuttle from Activision.

First of all, don't be put off by the manual that takes you three hours to read (which usually means you need a Doctor's degree to understand it). In fact, the controls are fairly straightforward. Your mission is to move a satellite that you probably put into the wrong orbit in the first place.

With one eye on the appropriate chapter, it's fairly easy to blast off (it's amusing to remember that NASA astronauts using one of these step-by-step manuals). But, once in orbit, you'll find that locating the satellite and locking with it is quite another matter. To tell the control speed and altitude simultaneously is something of a real feat

— because of the trade off between the two. And don't get too smug if you achieve it — remember there's still the minor problem of landing the shuttle without ending up at the bottom of a multi-billion-dollar hole.

The graphics are done professionally, although they're nothing to write home about (particularly that the way the Earth and sky changed colour as you moved in and out of the sunlight, the sky also begins to get ominously dark when you begin to drift too far away from the planet).

Space Shuttle is really quite addictive, particularly when the chase is on to catch the straggler satellite. I doubt however, whether this is an accurate situation,

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HOLT SAUNDERS

BLUE MAX Synsoft £19.95



In this month's simulation corner we have Blue Max, a goggles and flying helmet

number from Synsoft.

Originally written for the Atari, Blue Max is one of those River-Rainforest of games where you take off, bomb some curious-looking guns and buildings on the ground, shoot the occasional spore — and then land again... I'm afraid there's not much exploration. A sort of circuits and fumble affair that sounds simple enough.

Well, actually, not for one thing, I might be astonished, but when I put the joystick back, it expects me to — non-erase into the ground (and, yes, I did have the joystick round the right way). It would have been nice if Synsoft had told me it'd moved the joystick before I'd destroyed some 20

aircraft on take off. I mean, you feel such a fool.

Anyway, once airborne you fit around the circuit-casting mayhem for King and country. The buildings are easy enough to deal with, assume the tanks (or are they tanks?) but the moving trucks are more difficult, not to mention the enemy aircraft. It's rather a pity you can't engage the 'Laudite in daylight' (as we flying buffs call it)... all they do is fly off the screen — damn severely I recall it.

The graphics and play of Blue Max are similar to what you'll find in Jaxxon — and, to be frank, I'd recommend you buy that instead.



FRED

Bend Sinet £19.95



Yet another product to rot off the seemingly endless Quicksilver production line — and

this time it's a re-working of the Spectrum favourite. The question is... why has it taken so long to arrive for the B4? After seeing so many other programs of this type on the B4, one might be forgiven for thinking that Fred's a direct rip-off... apart from the fact that Fred's quite fast.

Anytime, back to the game itself. As Fred the explorer, you pick your way through a host of obstacles by climbing up and down ropes, picking up treasure as you go. The obstacles are motivated by ghosts, skeletons and monsters and, when you eat one from, part of your energy starts every quarter what... run out of energy and you're dead? You are armed just with a gun effect,

though it has little effect on the ghosts (which drift through walls, it is Pacman), is useful against the monsters and skeletons. However, as a nod towards realism your gun has only six shots in it, so it's advisable to go easy on the fire button. Mind you, providing you can keep control of the joystick, it's probably just as easy to outrun the monsters and drive out of the way — as they don't seem to chase you anyway!

Once you've collected all the Egyptian treasure a level that's lying around there's the small problem of getting out. You can do this by collecting a grin in the maze and blowing it out with the handy bomb you're supposed to have found on your travels.



CAESAR'S TRAVELS

Minerva £19.95



Caesar has been caught smuggling up the ladder by his owner Mr McGregor and the

naughty man decides that our feline hero is uneconomic, not to mention redundant. Caesar must now go forth and 'research' a living from the big wide world.

The big cat never gets bored as he travels around. He gets chased by dogs and parrots, gets stuck in car boots and dustbins, meets unfriendly butchers, foremen, witches and much, much more. In fact, he's quite the little action cat!

Caesar is guided on his adventures by the Function and Return keys, each of which has a different command, such as 'Hide' or 'Jump'. And every so often he's asked an educational-type question like 'How many cats?' or 'Which is the biggest

cat?'

The screen is divided up into two parts: the top telling the story of the trials of Caesar while the bottom is an animated graphics screen which acts out the action.

Some among you may be wondering why this game's being reviewed rather than some brainless 'shoot 'em up' — well, Caesar's Travels has a quality which makes most 'green-up' adventures look like the half-baked thing they actually are. The story's interesting, the graphics are great and the sound isn't all bad either.

Buy this one for a younger brother or sister and I'll bet you end up playing it yourself!



CHOPPLIFTER

Amsoft £19.95



If you want to see the 'biggie' from Amsoft, take a look at the 194 envelope of

Asar On Bungling Bay. But it seems the game was so successful that the company's wasted no time in releasing its follow-up.

In many ways, Chopplifter is similar to Asar, especially as it seems that you're once again piloting a helicopter against the Bungling in the name of the good ol' US of A. This time, however, the object is to rescue a group of hostages who have been kidnapped by the Bungling Empire.

The 84 prisoners are being kept in what looks like miniature Swiss cottages and, when you land, they emerge, wave their arms about and gratefully climb aboard. Naturally, the Bunglings take offence at

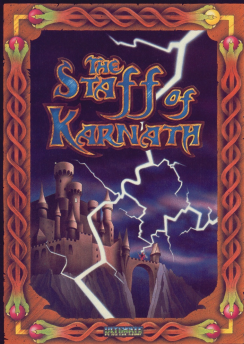
this and they take no time in dispatching a bunch of tanks after you. The best way of dealing with them seems to be to pattern bomb the whole area!

As with Asar, the first level is fairly easy, while the second is getting on for impossible. Once you've delivered the first load of hostages (the chopper only takes 16 at a time), things really start to get out of hand. Suddenly, you're beset by an aircraft and floating mines, and the pathetic little pea-shooter that passes for your weapon hardly seems adequate.

Although not as good as Asar, this game's alright, and the concept is as good a 'shoot 'em up' as you'll find anywhere.



COMMODORE 64 (Joystick Compatible)



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(P&P included) Tel: 0530 411485

FRONT LINE

Intelligence Memory £1.95



Here's a sort of ground-level version of Blue Max that has you meandering around.

blasting away at anything that moves.

The year is 1984 — although you wouldn't know it from all the jets and helicopters the enemy throws at you — and you're in control of an experimental battle tank that charges around the countryside doing battle with anything that raises its alien head.

The map depicts your heroic actions in the usual kind of flat greenery and carefully winding rivers and roads so beloved of games programmers. Things to avoid while you're rattling along are the mines, the octopus-looking turrets which you can't damage (but they can hurt you) and the robots which seem to have a magnetic

attraction to your metal exterior. Apart from that, anything else is fair game.

Easy, you may say. Hal! The trouble is, the programmer has included an unusually mean feature. You fire a shell by pressing the fire button but it won't actually explode until you let go again! You've not only got to aim the damn thing at a moving target, you also have to judge when the shell has to explode. That's not easy, especially if like me, you're used to just stabbing away at the fire button.

Front Line is not the best game I've ever seen but it is engaging, and a lot more fun than most of the other stuff around. It's also pretty difficult to master.

GANDALF THE SORCEROR

Turner Software £3.95



Those of you with undamaged brains will remember that a couple of months ago,

a Turnac offering won the game of the month accolade (admittedly against poor opposition) mostly on the strength of the speech synthesiser. Well, my little chickens, Turnac has done it again, as let's see how it measures up to the last effort.

Gandalf the Sorcerer is based around a Renaissance kind of design — and that, after all, is one of the classics. The style is, of course, to not copy too slavishly. That is, Gandalf the Wizard, your task is to destroy the lordman, who are besieging your castle and you do this by firing bolts at them. Once they're bunged off, the bolts turn into gold coins, which is really jolly decent of them. The deviously nasty things

are attempting to steal your apprentices, and I bet you're thinking the object is to try to stop that happening. But wait... if you don't allow them to break down the door, how are you going to collect those nice gold coins? Even a wizard has got to eat a crust you know. The biggest problem is that when the door is broken down, the first of the uninvited guests is a spider which has a nasty tendency to run into you and transform the wizard into a puddle of shapeless goo. Neat! Once you run out of spells, it's up to the castle tower where Gandalf is refuelled by a convenient lightning bolt.

Sorry chess, no award this time!

BLACK THUNDER

Comstar £3.95



Quixotic has not been without its bad press in this column of late. For every good

game that emerges from the portals, out comes a handful of sinkers!

Black Thunder is one of the former and I'm delighted to report, a rare-gems indeed. It's an arcade stunner that's fast, frantic and thoroughly effective.

As Game-Tier (the programmer's name in case you didn't know), the object of the exercise is to depart from the town of Hallowood on the local motorway system — easy until you realise you're being pursued all the while by the android Highway Patrol.

It's split screen action. On top is your motor, a sort of customised VW Beetle that you see speeding past a rather attractive landscape. Don't however spend too much

time admiring it if you want to stay alive for any length of time; keep always firmly on the screen at the bottom. That's where you'll see a scrolling map of the motorway system complete with the helicopters and patrol cars that are coming to get ya! Flying things have a nasty tendency to drop bombs on you, so do everything you can to avoid landing up underneath them. Nifty footwork will get you behind and in position to open fire. To get out of the city alive you have to score a maximum of 10,000 points; this you'll get by offing your pursuers and poking up the little gold things.

Phew! After a game like that I think I'm almost prepared to sit through anything!

COMBAT LYNX

Dave £3.95



Another candidate for high-flyer of the month is Combat Lynx from Durell and

here, the action involves you guiding a helicopter towards the enemy tanks and hurling missiles at them.

A curious game it is. On the face of it Combat Lynx seems to have everything going for it. 100 per cent machine code, the assistance of Westward Helicopters, a wealth of controls to play with, a map to wander through — and a choice of mission! All in all, good stuff which should add up to an absolute stunner... and yet it doesn't quite make it.

If we're talking about realistic flight simulations (which I presume we are) then one would surely expect to see the view from the cockpit at all times — and here one

doesn't. The only time you're in the saddle is for the few seconds when the enemy tanks are in view and you're having to target them; most of the time you're looking at the helicopter itself. The terrain has hills and towns — which certainly makes a change from the usual featureless shooter tales. Yet the scrolling is unaccommodating jerky. Meanwhile, although missiles explode around you, they're hardly worth bothering about because they almost always miss.

Really Combat Lynx is not at all bad; I guess I was just expecting something a little better. It seems a shame to waste such good ideas in a shoot 'em up game!

KAMI-KAZE

Superstar 15.99



Believe it or not, an alien battle cruiser with the fleet's secret plans has landed on

Cleethorpe pier. But evidently it's a master of inter-planetary disguise for it induces hallucinations in humans and animals, leading them to believe that it's actually a public foot and the secret plans are, in fact, toilet paper! As Commander of the battle fleet hovering over Cleethorpe, your task is to stun the humans and dogs (who have clearly been watching too many *Andra* adverts) before the plans go down the pan — sorry, tube.

Obviously, this is a deeply important game with the very future of the galaxy itself at stake. So, clutching the joystick, off we go to save Cleethorpe. The first thing that crosses your mind as you play is that

perhaps the local beer might be a bit heavy ... there do seem to be an awful lot of people wanting to use the loo. The second thing you notice is the joystick only flies horizontally, vertically or at a 45 degree angle — so you have to keep moving the joystick to be able to finish the right direction. Another problem is the clouds ... if they hit you, the spaceship blows up!

The graphics are very nicely designed, way better than the usual *Sega* standard variety. In fact — sorry all *Sega* programmers — when I first saw the screen (though it *had* to be an American import, *Compton* happy and should keep the joystick looks happy for hours.



PERILS OF BEAR GEORGE

Commodore 15.99



If you go down to the woods today, you're sure of a big surprise — a bear by the name

of George who wanders around eating apples as they drop out of the trees. So what on earth is he doing? Well, winter is coming on and Bear George has to hibernate — and you wouldn't want him to starve, now would you? (I didn't hear that!)

The game divides into two parts. In the first screen you have to guide *Bear* around an orchard, while all about him apples are dropping faster than the value of the pound! Using your trusty joystick, the trick is to position *George* underneath the falling fruit; pull the stick back, *George* opens his mouth — and tings the apple down inside. If your timing's off, they bounce off his head, but success allows

George's fat content to visibly rise. Beware, however, the water section!

After a while, just as *Compton* begins to get in, the scene changes to winter and now it's time to guide *George* to his cave for his winter hibernation period. Our bear, however, clearly has an incredibly small brain because he's chosen a resting place that's directly underneath a ski-slope and faster than the M1! Your job is to stop silly *George* being dumped in the snow.

The press release that arrived with this game warns reviewers not to condemn it as too easy. Things apparently get a harder as you go up through the levels. I didn't think it was easy ... I thought it was silly.



DAVID'S MIDNIGHT MAGIC

Amstrad 15.99



I have a confession to make ... computer games are not my only favourite way of

passing the time. OK — so it shows! The thing is, whenever I get into an arcade I always head straight for the pinball games. Pinball is much more physical ... you can throw the thing and things it around. Computer games just don't have that aspect and there's no way of releasing that pent-up energy.

So it was with some trepidation that I approached *David's Midnight Magic*, a computerised pinball simulation. I've played pinball simulators before and they've been uniformly awful — hence my suspicions. This one, however, turned out to be the best I've ever come across — which, admittedly isn't saying much! The

ball behaves much like a real pinball in that it doesn't exactly follow the paths dictated by Newtonian physics; it has a certain randomness built in. It also travels at more or less the right speed.

What's more, the programmers have even attempted to do something about being able to jolt the machine — in this case you bang away on the space bar. So it too often and the game 'tilts'. OK, it's not ideal, but a nice idea all the same. The flippers are friendly and responsive and with a bit of imagination, I could almost believe I was playing a real pinball machine — almost. But ... why on earth is the game called *David's Midnight Magic*?



BIG BEN

Interceptor 14.99



Our hero *Biz* (a hero) has been imprisoned (shame!) by the evil wizard *Jem* (boss), and

the only way he can escape is by tiring *Big Ben*'s ball (oh?), but there's a problem (hah!) because first *Biz* has to collect coins that are needed to open the tunnel to the ball.

If you think this sounds like a cue to a ledgers and platform game, you'd be right! And you won't be disappointed. *Biz* starts his endeavours at the bottom left-hand corner of the screen. A few steps away is a turbo plane with which he can make his escape. But don't be fooled into thinking that you can tip in and fly around picking up the gold pieces.

To start with, the plane doesn't fit into some of the right loops where the coins are

hidden and, for another, you can't pick up anything while looked away inside the cockpit anyway. That means *Biz* has to leg it all around the screen.

You'll find scattered around among the gold coins some interesting looking contraptions which, at first sight, look worthy of investigation. Avoid the temptation — unless you take sadistic delight at turning poor old *Biz* into pink blamplange!

The *Big Ben* screen scrolls sideways, which makes a change from the usual unbroken rooms platform game mode of operation. Overall, it's pretty good — and rather more diverting than usual.



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This competition involves a skill we happen to know that most readers are very good at — and, that's spotting mistakes in the magazine (Hemp! Etc.). And, very simply, all we want you to do is take a good look at the two specimen £500 vouchers shown here and see if you can ... spot the difference!

First off, though, here's a clue. The £500 voucher shown in the coupon is the one that's riddled with mistakes. All you have to do is to find them ...

Then, when you think you've spotted all the tell-tale mistakes, ring the differences on the £500 voucher inside the coupon and complete the rest of the form. Before you post it off to us, write down the number of differences you found between the £500 vouchers on the back of the envelope.

All Spectrum UK competition entries should be sent to Spectrum UK Competition, Your 64, 14 Hatfield Place, London W1P 0DE.

THE WINNER!

Competition wouldn't be as much fun if there weren't a few prizes lying around ... and that's why there'll be a real £500 voucher for the first correct entry to be picked out of the Editor's hat. And, not only that, Spectrum UK has also stumped up five £100 vouchers for the five runners-up.

Of course, it's a must!

Y64/SPECTRUM UK COMPO SPOT THE DIFFERENCE

In conjunction with Spectrum UK Ltd, Your 64 is proud to present its very own Spot The Difference competition. And there's £1,000 worth of Commodore peripherals and software that must be won ...

stamping into any of shop-demanding goods with one of these vouchers — you'll have to spend it on Commodore

peripherals and software only in one of the many Spectrum UK chain stores throughout the UK. And seeing as how Spectrum

UK clearly virtually enjoys C64R goodies that's around, you're in for a real treat!

SPECTRUM UK RULES OK!

- Entries for the Spectrum UK competition must be post-dated not later than 30th April, 1985.
- Each entry must include a copy of the completed coupon, as well as the number of differences clearly marked on the back of the envelope.
- The Editor's decision is final and no correspondence will be entered into regarding the results of the competition.



Y64/SPECTRUM UK COMPO SPOT THE DIFFERENCE



I managed to find ... differences between the two £500 vouchers. So, how about a real one then?

Name _____

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Post this coupon without delay — don't miss out on this great competition! Send your entries off to Spectrum UK Competition, Your 64, 14 Hatfield Place, London W1P 0DE. And don't forget to write the number of differences you found in the coupon voucher on the back of your envelope!

IMPORTANT HEALTHY WARNING

Think about it before you cut this magazine to pieces — most people prefer to use a photocopy!

KEYBOARD
19 KAPPERS
3D
MAZE

Plus, whether 3D music programs might not sound like the most earth-shattering event since Columbus discovered his route to India.

remission of machine costs
this program from our regular
Keyboard Support Plan is for
more in-depth than the usual

Basically, you're stuck in the middle of a labyrinth — and you suddenly realize that there's a time-lock tied to the only exit! Before you start off, you'll be able to see a plan view of the maze-like chain on-screen. The exit is always at the top-right of the screen and you — a blue satellite — start off in the bottom-left-hand corner. It's make-it-or-buy-it, as you may have already guessed. Is chess randomly each time, so there's no chance of you memorizing the exit to it?

Once you've seen the main plan for about ten seconds, you're off. The screen splits into two, with the left-hand side revealing the contours of the main on the right, you'll see a digital clock counting off those precious seconds 'til the exit is sealed forever! Underneath the graphics screen, you'll see a Compass that you can use as a guide on your travels - but don't spend too long admiring it, or you're out of the race!

There are two pages of on-screen instructions accompanying the game, and once you've read those carefully, you must select the level of difficulty you want. Level one — the Beginner's level — allows you five extra-looks at the map and five minutes to escape the maze. Harder escape attempts might like to select level two — but, be warned, you've only one minute to get through the maze and only one extra look at the maze!

accomplished by joystick, the joystick must be placed into Port2. But, before you rush off and type the program in, there are a few things you ought to watch out for. First up, the triangular symbols in lines 1040-1150 are control codes for the colour (cyan). Also, as the program's fit to bursting with machine code, it's a wee bit more to save the program before you run it — a single typing error will more than likely produce a crash and you don't want to have to type it all in again, do you?

The hieroglyphics in the following lines can be entered more easily if you press the **Ctrl** key and **Shift** to generate lower case mode) and then enter the following text:

00000000: RAGE INSTRUCTIONS PAGE 1
00000000: RAGE INSTRUCTIONS PAGE 2
00000000: RAGE LEVEL SELECTION
00000000: RAGE LEVEL CHOSEN
00000000: RAGE PICKUP INJECTION TO
00000000: CHARGE LEVEL
00000000: RAGE AND PRESS FIRE BUTTON TO:
00000000: RAGE 2000

Lastly, the 3D mouse strings in lines 8030-1 show the make-up of Cursor Home, Cursor Left, Cursor Right, Cursor Down, Reverse On, Reverse Off, Stat C, Stat F, Cmd H and Cmd M characters (the last two symbols are difficult to identify in the listing when they occur next to other characters).

And finally, the, naturally, you
making for? Good hope ... without
anyway, the, without, you?

MAIN PROGRAM VARIABLE

L(Array)	The location changes representing the four directions used in the random maze generation.
D(4)(Array)	Directions North, East, South and West.
L0(D:Array)	The string variable that holds the given elements of the 0th maze steping. The arrays have one for Left first.
L1(D:Array)	Left Middle, Left Far, Centre, Right Far, Right Middle and Right Near.
C(S:Array)	
R(F:Array)	
R(M:Array)	
M(C:Array)	
MC	Mazeing cost.
JR	Joyrich value.
L	The start location for the random maze generator (that is, the middle of the screen).
L/T	The level of play (1-5).
P'	The past loc in memory which equals to player's current location made. (Player visit all location RND dir-array which is equal to memory location SOON.)
DB	The direction indicator (1-4).
MD	The change in location resulting from one move by the player.
TA	The number of minutes allowed for each game.
NL	The next location — required by the random maze generator.
L0,L1,LJ, C,C1,C2, RF,RM,RH	The subscript variables for the corresponding string arrays, dependent on the parents of the maze locations.

"The number of times you look at the mirror just depends on the level you choose to start on. Since you're not even 4, you're not only not biologically changed to look a little more...



The compass at the bottom of the screen is always there to help you guide your ball round the maze. It may seem unimportant, but just wait until you've reached all your ball's holes at the maze's exit.

Thinking about it
later, you're glad to
complete your
analysis of
dependencies in the
level you created
— right? It must not
result in a difference

They have told you
they should tell
you've got letters
get out of the
stage — and with
33 records left,
don't they
know?

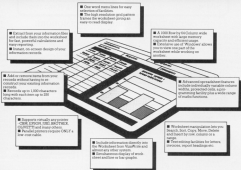
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● ■ KEYBOARD KAPERS ■ ●

```

0000 ROM*****
0010 ROM TITLE SCREEN
0020 ROM*****
0030 PRINT "CHRG 12 CHRG 11 FORDSSEE,
0040 PRINTTAB(10)"L,F "*****L,F
"
0050 PRINTTAB(10)"L L ***** L L
"
0060 PRINTTAB(10)"L L ***** L L L
0070 PRINTTAB(10)"L,F L,F L L
L L
0080 PRINTTAB(10)"L L L L L L
L L
0090 PRINTTAB(10)"L L ***** L L
0100 PRINTTAB(10)"L,F "*****L L
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0110 PRINTTAB(10)"L ***** L
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0120 PRINTTAB(10)"L,F "*****L
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0130 PRINTTAB(10)"L,F "*****L
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0150 PRINTTAB(10)"L L L L L L L L
*****L L
0160 PRINTTAB(10)"L L L L L L L L
L L L L
0170 PRINTTAB(10)"L L L L L L L L
L L L L L
0180 PRINTTAB(10)"L L L L L L L L
L L L L
"
0190 PRINTTAB(10)"L L
"
0200 PRINTTAB(10)"*****Y R,OUNT 1000"
0210 FOR=CUT00000 INCT

```

[illegible][illegible]

Lines 2000-2070 Assign variable names to the constants, read and print the machine code into the success buffer

[illegible][illegible]

Links 0000-3430 Display two pages of instructions on-screen, and wait for the fire button to be pressed after each page. (Note that your joystick must be plugged into Port 3.)

KEYBOARD KAPERS

```

4000 REM *****
4010 REM SET VARIABLES & SELECT LEVEL
4020 REM *****
4030 L=1:DO=1:J=1:P=0:SS=0:Q=1:R=0:W=40
4040 PRINT"*****"
4050 PRINT"*****"
4060
4070 PRINT"*****"
4080
4090 PRINT"*****"
4100
4110 PRINT"*****"
4120
4130 PRINT"*****"
4140
4150 PRINT"*****"
4160
4170 PRINT"*****"
4180
4190 PRINT"*****"
4200
4210 PRINT"*****"
4220
4230 PRINT"*****"
4240
4250 PRINT"*****"
4260
4270 PRINT"*****"
4280
4290 PRINT"*****"
4300
4310 PRINT"*****"
4320
4330 PRINT"*****"
4340
4350 PRINT"*****"
4360
4370 PRINT"*****"
4380
4390 PRINT"*****"
4400
4410 PRINT"*****"
4420
4430 PRINT"*****"
4440
4450 PRINT"*****"
4460
4470 PRINT"*****"
4480
4490 PRINT"*****"
4500
4510 PRINT"*****"
4520
4530 PRINT"*****"
4540
4550 PRINT"*****"
4560
4570 PRINT"*****"
4580
4590 PRINT"*****"
4600
4610 PRINT"*****"
4620
4630 PRINT"*****"
4640
4650 PRINT"*****"
4660
4670 PRINT"*****"
4680
4690 PRINT"*****"
4700
4710 PRINT"*****"
4720
4730 PRINT"*****"
4740
4750 PRINT"*****"
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4770 PRINT"*****"
4780
4790 PRINT"*****"
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4830 PRINT"*****"
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4850 PRINT"*****"
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4870 PRINT"*****"
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4890 PRINT"*****"
4900
4910 PRINT"*****"
4920
4930 PRINT"*****"
4940
4950 PRINT"*****"
4960
4970 PRINT"*****"
4980
4990 PRINT"*****"
5000

```

Lines 4000-4200 Initialize the variables. Display the levels of play available and wait for player to select level using the joystick.

```

5000 REM *****
5010 REM RANDOM NOISE GENERATOR
5020 REM *****
5030 PRINT"*****"
5040 PRINT"*****"
5050 PRINT"*****"
5060 PRINT"*****"
5070 PRINT"*****"
5080 PRINT"*****"
5090 PRINT"*****"
5100 PRINT"*****"
5110 PRINT"*****"
5120 PRINT"*****"
5130 PRINT"*****"
5140 PRINT"*****"
5150 PRINT"*****"
5160 PRINT"*****"
5170 PRINT"*****"
5180 PRINT"*****"
5190 PRINT"*****"
5200 PRINT"*****"
5210 PRINT"*****"
5220 PRINT"*****"
5230 PRINT"*****"
5240 PRINT"*****"
5250 PRINT"*****"
5260 PRINT"*****"
5270 PRINT"*****"
5280 PRINT"*****"
5290 PRINT"*****"
5300 PRINT"*****"
5310 PRINT"*****"
5320 PRINT"*****"
5330 PRINT"*****"
5340 PRINT"*****"
5350 PRINT"*****"
5360 PRINT"*****"
5370 PRINT"*****"
5380 PRINT"*****"
5390 PRINT"*****"
5400 PRINT"*****"
5410 PRINT"*****"
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5680 PRINT"*****"
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5850 PRINT"*****"
5860 PRINT"*****"
5870 PRINT"*****"
5880 PRINT"*****"
5890 PRINT"*****"
5900 PRINT"*****"
5910 PRINT"*****"
5920 PRINT"*****"
5930 PRINT"*****"
5940 PRINT"*****"
5950 PRINT"*****"
5960 PRINT"*****"
5970 PRINT"*****"
5980 PRINT"*****"
5990 PRINT"*****"
6000

```

5120 FOR J=1 TO 10000000000

Line 5000-5100 Generate a random noise in the form of a play view. Display the player and five asteroids and wait approximately 10 seconds for joystick activity.

```

6000 REM *****
6010 REM DISPLAY (30 PAGE)
6020 REM *****
6030 PRINT"*****"
6040 PRINT"*****"
6050 PRINT"*****"
6060 PRINT"*****"
6070 PRINT"*****"
6080 PRINT"*****"
6090 PRINT"*****"
6100 PRINT"*****"
6110 PRINT"*****"
6120 PRINT"*****"
6130 PRINT"*****"
6140 PRINT"*****"
6150 PRINT"*****"
6160 PRINT"*****"
6170 PRINT"*****"
6180 PRINT"*****"
6190 PRINT"*****"
6200 PRINT"*****"
6210 PRINT"*****"
6220 PRINT"*****"
6230 PRINT"*****"
6240 PRINT"*****"
6250 PRINT"*****"
6260 PRINT"*****"
6270 PRINT"*****"
6280 PRINT"*****"
6290 PRINT"*****"
6300 PRINT"*****"
6310 PRINT"*****"
6320 PRINT"*****"
6330 PRINT"*****"
6340 PRINT"*****"
6350 PRINT"*****"
6360 PRINT"*****"
6370 PRINT"*****"
6380 PRINT"*****"
6390 PRINT"*****"
6400 PRINT"*****"
6410 PRINT"*****"
6420 PRINT"*****"
6430 PRINT"*****"
6440 PRINT"*****"
6450 PRINT"*****"
6460 PRINT"*****"
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6650 PRINT"*****"
6660 PRINT"*****"
6670 PRINT"*****"
6680 PRINT"*****"
6690 PRINT"*****"
6700 PRINT"*****"
6710 PRINT"*****"
6720 PRINT"*****"
6730 PRINT"*****"
6740 PRINT"*****"
6750 PRINT"*****"
6760 PRINT"*****"
6770 PRINT"*****"
6780 PRINT"*****"
6790 PRINT"*****"
6800 PRINT"*****"
6810 PRINT"*****"
6820 PRINT"*****"
6830 PRINT"*****"
6840 PRINT"*****"
6850 PRINT"*****"
6860 PRINT"*****"
6870 PRINT"*****"
6880 PRINT"*****"
6890 PRINT"*****"
6900 PRINT"*****"
6910 PRINT"*****"
6920 PRINT"*****"
6930 PRINT"*****"
6940 PRINT"*****"
6950 PRINT"*****"
6960 PRINT"*****"
6970 PRINT"*****"
6980 PRINT"*****"
6990 PRINT"*****"
7000

```

Lines 6000-6200 Display the constant parts of the screen associated with the 30 main.

6240 T=0:GOTO 6250

Line 6240 Sets the internal clock to zero.

6250 FOR K=1 TO 10000000000

Line 6250 Blank out the computer pointer to signal that the player has moved the joystick.

```

7000 REM *****
7010 REM *****
7020 REM *****
7030 REM *****
7040 REM *****
7050 REM *****
7060 REM *****
7070 REM *****
7080 REM *****
7090 REM *****
7100 REM *****
7110 REM *****
7120 REM *****
7130 REM *****
7140 REM *****
7150 REM *****
7160 REM *****
7170 REM *****
7180 REM *****
7190 REM *****
7200 REM *****
7210 REM *****
7220 REM *****
7230 REM *****
7240 REM *****
7250 REM *****
7260 REM *****
7270 REM *****
7280 REM *****
7290 REM *****
7300 REM *****
7310 REM *****
7320 REM *****
7330 REM *****
7340 REM *****
7350 REM *****
7360 REM *****
7370 REM *****
7380 REM *****
7390 REM *****
7400 REM *****
7410 REM *****
7420 REM *****
7430 REM *****
7440 REM *****
7450 REM *****
7460 REM *****
7470 REM *****
7480 REM *****
7490 REM *****
7500 REM *****
7510 REM *****
7520 REM *****
7530 REM *****
7540 REM *****
7550 REM *****
7560 REM *****
7570 REM *****
7580 REM *****
7590 REM *****
7600 REM *****
7610 REM *****
7620 REM *****
7630 REM *****
7640 REM *****
7650 REM *****
7660 REM *****
7670 REM *****
7680 REM *****
7690 REM *****
7700 REM *****
7710 REM *****
7720 REM *****
7730 REM *****
7740 REM *****
7750 REM *****
7760 REM *****
7770 REM *****
7780 REM *****
7790 REM *****
7800 REM *****
7810 REM *****
7820 REM *****
7830 REM *****
7840 REM *****
7850 REM *****
7860 REM *****
7870 REM *****
7880 REM *****
7890 REM *****
7900 REM *****
7910 REM *****
7920 REM *****
7930 REM *****
7940 REM *****
7950 REM *****
7960 REM *****
7970 REM *****
7980 REM *****
7990 REM *****
8000

```

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[illegible][illegible]

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[illegible]

```

00000 REM CENTRE BLOCKED LARGE
00010 T@1:= "XXXXXXXXXXXXX"
00020 T@2:= "XXXXXXXXXXXXX"
00030 T@3:= "XXXXXXXXXXXXX"
00040 T@4:= "XXXXXXXXXXXXX"
00050 T@5:= "XXXXXXXXXXXXX"
00060 C@10:=T@C10+T@C20+T@C30
00070 C@15:=T@C15+T@C25+T@C35
00080 REM CENTRE FAR OPEN
00090 T@1:= "XXXXXXXXXXXXX"
00100 T@2:= "XXXXXXXXXXXXX"
00110 T@3:= "XXXXXXXXXXXXX"
00120 T@4:= "XXXXXXXXXXXXX"
00130 T@5:= "XXXXXXXXXXXXX"
00140 C@10:=T@C10+T@C20+T@C30
00150 C@15:=T@C15+T@C25+T@C35
00160 REM LEFT AND RIGHT DISTANT OPEN
00170 T@1:= "XXXXXXXXXXXXX"
00180 T@2:= "XXXXXXXXXXXXX"
00190 T@3:= "XXXXXXXXXXXXX"
00200 T@4:= "XXXXXXXXXXXXX"
00210 T@5:= "XXXXXXXXXXXXX"
00220 C@10:=T@C10+T@C20+T@C30
00230 C@15:=T@C15+T@C25+T@C35
00240 REM LEFT DISTANT ONLY OPEN
00250 T@1:= "XXXXXXXXXXXXX"
00260 T@2:= "XXXXXXXXXXXXX"
00270 T@3:= "XXXXXXXXXXXXX"
00280 T@4:= "XXXXXXXXXXXXX"
00290 T@5:= "XXXXXXXXXXXXX"
00300 C@10:=T@C10+T@C20+T@C30
00310 C@15:=T@C15+T@C25+T@C35
00320 REM RIGHT DISTANT ONLY OPEN
00330 T@1:= "XXXXXXXXXXXXX"
00340 T@2:= "XXXXXXXXXXXXX"
00350 T@3:= "XXXXXXXXXXXXX"
00360 T@4:= "XXXXXXXXXXXXX"
00370 T@5:= "XXXXXXXXXXXXX"
00380 C@10:=T@C10+T@C20+T@C30
00390 C@15:=T@C15+T@C25+T@C35
00400 RETURN

```

Source: <http://www.fishbase.org>. Downloaded January 10, 2006.

[illegible]

Lines 1 0000-11100 Produce the data for the machine-code which fills the screen.

[illegible]

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There'll be a panel of three judges to pick the six finalists. Stay forward Chris Palmer (one of the home computer keyboard), a well-known personality from the wacky world of commercial software (CIB), so we don't know who it'll be yet! But let's not concern head bodies.

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ROUTINE STUFF!

In this, the penultimate part of our machine code series, Andrew Bennett takes a close look at the 64's built-in subroutines.

Let's start this month's introduction to machine code by showing you the machine code equivalent of the Basic command GOSUB. As you all know, GOSUB is a word for GOTO Subroutine and is used to jump to a routine that you wish to use several times during your program. To save you typing in the routine every time you want to use it, you simply GOSUB to the routine. (Using subroutines also helps to save memory which, even in machine code, can be important.) When Basic meets a RETURN command it continues executing your program from the statement after the GOSUB that called it. It knows where to jump back to because, when the GOSUB is executed, Basic remembers the GOSUB's line number.

We can do a similar thing in machine code using the JBR (Jump to Subroutine) command. JBR takes the form:

JBR XXXXX where XXXX can be any four-digit hex number or, at least, 0000.

When the 64 meets a JBR command it remembers whereabouts in memory the JBR is, and then transfers to the subroutine. At the end of the subroutine the 64 will find an RTS (Return from Subroutine) Subroutine) and transfer back to the point just after the JBR command. Have a look at the MACHINE CODE SUBROUTINES box if you don't understand this completely. This example also uses a Kernel routine explained later in the article.

Subroutines in machine code are just as useful as they are in Basic, and you should use them as much as possible. You could, for example, have a subroutine to clear the Hi-res screen which you could call from several different parts of your program.

Another command that we should look at here is the JMP (JUMP) command. JMP is the machine equivalent of Basic's GOTO command. It takes a similar form to JBR.

JMP 00000

JMP, like GOTO, often indicates sloppy programming and should really be 'planned around' if possible, by trying to keep the logical flow of your program as a straight line rather than jumping around all over the place.

Last month I told you that I'd show you how to multiply and divide numbers by 2. Let's look at multiplication first.

The multiplication command in machine code works on numbers in a binary format and is called ASL (Arithmetic Shift Left). Arithmetic Shift Left is quite a mouthful, but it simply means that each bit in the number is moved one bit left. So that bit 0 becomes bit 1, bit 1 becomes bit 2, etc. If you think about it, since binary is base two, this effectively means that the number is multiplied by 2 — as long as the result is smaller than 255 (255). During the ASL operation the 7th bit is moved into the Carry flag. You can therefore check the Carry flag to find out if an overflow (Carry) has occurred. Using ASL, you can therefore create that the number will be multiplied by the appropriate power of 2. For example, using ASL three times will multiply the number by 8, four times by 16 and five times by 32.

The different forms of the ASL commands can be found on page 236 of the Programmer's Reference Guide. We've already looked at all of these

addressing modes except ASL A.

ASL A is used to multiply the accumulator by two. This form is not really a proper addressing mode and can only be used with certain commands (it would be difficult to have LDA A).

The command to divide numbers by two is quite similar to ASL and is called Logical Shift Right or LSR for short. LSR is the exact reverse of the ASL command, because each bit is moved one to the right and the number is divided by 2. In the case of LSR, bit zero moves into the Carry flag and can be tested for an underflow (where the result underflows from 255 to 254). Successive uses of LSR will cause the number to be divided by 4, 8, 16 and so on. The different forms of LSR are given on page 245 of the Programmer's Reference Guide (PRG).

The ASL and LSR commands are examples of machine code commands that have no direct Basic equivalent. Using these, and the addition/subtraction commands given last month, you should be able to multiply or divide any number (in the range 255-255) by any other. For example, to multiply a number (R4) by 3, multiply R4 by 2 and add the original number (2R4+R4=3R4).

Last month I showed you how to add and subtract numbers as long as they stayed within the 255-255 range. In the case of an addition, I told you that the Carry flag shows whether an addition has 'rolled over', as long as it is cleared before the ADC command. We can use the Carry flag to allow us to add numbers together in the range 0-65535 (65535-65535) like this:

```
LDX $00      Make Accumulator equal to the value of
              Register X
LD  #0000    Load #0000 to the accumulator
STA $00      Put the result back in X
ROR #$01     Rotate the addition result one word and
              the Carry is still clear (0)
STX $00      Store the result of the Carry
```

HOMEWORK SOLUTION

```
100 1
101 2
102 3
103 4
104 5
105 6
106 7
107 8
108 9
109 10
110 11
111 12
112 13
113 14
114 15
115 16
116 17
117 18
118 19
119 20
120 21
121 22
122 23
123 24
124 25
125 26
126 27
127 28
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131 32
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- information at any time • Call up for your immediate attention
- APP page of your recorded information at any time • Leave a
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1. *Journal of Management Studies* (1997) 34, 101-114

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Classification	Model	Feature	Feature value	Feature name
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Acid Rain

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The diagram illustrates the interconnected nature of various accounting books, represented as interlocking gears. The gears are labeled as follows:

- Profit Loss A/C and Balance Sheet**
- Trial Balance**
- VAT Records**
- Cash Book**
- Petty Cash**
- Bank Accounts**

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C-0019	Slide	C0019	
C-0019	Cassette	C0019	Startup Business Combination Plans (includes extensive SEC material about Delaware, Block Deal/POA, and M&A)
C-0019	Slide	C0019	

WHAT IS IT?

A *descriptor* of the object to allow for manipulations of names and addresses and other data. Occam's unique "descriptor" system gives you a list that can store defined parameters to make your own selections. Features include the facility to find a name or class in memory only (one) of the class in memory, and to report location in a number of ways: normalized location.

Case 1	Chronic	10/10/1999
Case 2	Chronic	10/10/1999

HOME ACCOUNTS

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AVAILABLE FROM:

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Figure 1. (a) 1997 and (b) 1998 rainfall (mm)

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Abstract

LDA #00 (This part of the program adds one to the hi part of the number)
ADC #80 (Thereby taking care of the overflow)
STA #00
BRT (Rest of Program)

The above example does not by any means show the least method of dealing with overflows during addition of 16-bit (4 Hex digit) numbers. In fact it involves a branch instruction that is unnecessary. A much better method is:

LDA #00
CLC
ADC #80
STA #00 (No before so far)
LDA #00 (Notice that the Carry hasn't been cleared this time)
ADC #00 (Add zero to the hi part of the number)
STA #00 (And place the result back into the hi)

Only the part of the program that deals with an overflow is changed. How have we dealt with the problem of the overflow by adding zero to the hi part of the number? If you remember, last month I told you that ADC adds the values of accumulator, the argument after the ADC command and the Carry flag. This is why, for most additions, the Carry flag must be cleared before the ADC command. If an overflow occurred during the addition of the hi part of the 16-bit number, then the Carry flag will be set. The Carry will then be added to the hi part of the number during the ADC #00 command, thus taking care of the overflow. If there was no overflow the Carry will not be set and zero will be added to the hi part of the number. The first method is easier to follow, but the second is far more elegant.

Kernal

We've already covered jumping subroutines in this part of the machine code tutor. Inside the 64's operating system, or Kernal (the programs that keep the 64 running), are several useful subroutines. These common subroutines are used by the operating system so that it can fit into as small an amount of memory as possible. As machine code programmers, we can use all these subroutines in our programs. There are subroutines to print characters to a file, save or load to disk or tape, take input from the keyboard and many others which are not used as often as the above, but can be very useful.

Each subroutine has its own name and address. These can be found on pages 270-306 of the Programmers Reference Guide (PRG). Before you can use a subroutine, you must set the Accumulator and the indexes to certain values which are passed to the subroutine. These values are outlined in the pages of the PRG mentioned above. In this part of the machine code tutor, I'll be looking at a few of the Kernal subroutines that I find most useful.

The first of these is called CHROUT (PRG page 278) which is short for Character OUT. This subroutine prints a character to an open file. If, however, you don't open a file before you use CHROUT the character is printed into the next available position on the screen. CHROUT's address is \$FF00. To use CHROUT, you simply set the accumulator to the ASCII value of the required character then JSR to \$FF00. For example:

LDA #65
JSR \$FF00

Would print 'X' (ASCII 65) on the screen. Since ASCII codes are different screen codes on the 64, you will find that this, in fact, produces a shifted-A on the screen.

To move the next printing position about the screen, you can use another Kernal routine: PLOT

(\$FF05, PRG page 299) to place the cursor where you wish to print the character. To use the PLOT routine you must set the X index to the row number and the Y index to the column number at which you want to print.

As well as using CHROUT for printing the normal character set to the screen (or a file), you can also use it to print the other ASCII codes. This means that, for the first time in machine code, you have a very simple method of clearing the screen. The ASCII code for clearscreen is 147. Therefore, to clear the screen, use:

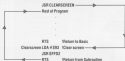
LDA #83
JSR \$FF05

You must remember that clearing the screen also resets the colour screen so that if you don't re-set it after executing the above, any further STAs to the screen won't show up because they'll be in the same colour as the screen.

Another very useful Kernal subroutine saves an area of memory on disk or tape and is called, not surprisingly, SAVE (\$FF06, PRG page 300). The use of this routine is slightly more complicated than the use of CHROUT or PLOT. To use SAVE you must first JSR to two other Kernal subroutines — SETLFS and GETNAM.

SETLFS (\$FF0A, PRG page 301) opens up a file to the cassette or disk (or printer when it is used with

MACHINE CODE SUBROUTINES



Just as you use BASIC and RETURN to going to a Basic subroutine, JSR (Jump to Subroutine) and RTS (Return from Subroutine) are used in machine code. The above example clears the screen.

CHROUT) in which you can save an area of memory. Make the X index equal to the device number before calling SETLFS.

GETNAM (\$FF0D, PRG page 300) sets the name to be saved on the tape or disk. If you are saving to tape, you have the option of leaving the name blank. This is done by setting the accumulator to zero, otherwise the accumulator is set to the length of the name. The X and Y indexes are used to point to where you have the name in memory. The X index should hold the hi part of the address and the Y index the lo part before you call GETNAM.

Now, finally, you can use the SAVE routine. First store the hi and lo parts of the start address, of the block of memory that you wish to save, in \$03 and \$04 respectively. Make the accumulator equal to the number \$03, which is the offset from location zero of the pointer at \$03. Now make the X index equal to the hi part of the end address and the Y index equal to the lo part of the end of the block of the area of memory to be saved. Now JSR to the SAVE subroutine at \$FF06. If you don't fully understand the above, have a look at the SAVING MEMORY TO TAPE program which gives an example of the SAVE subroutine in use.

There's also a Kernal subroutine to load an area of memory from tape or disk. This is called LOAD (\$FF08, PR page 300) and once again SETLFS and

YOUR 64 MISCELLANEA

SETTRAM must be used before it. Have a look at the **LOADING MEMORY FROM TAPE** program for an example of the **Kernal LOAD** suboutine in use.

Last time I promised to give you the addresses of the **Kernal** routines that allow you to convert the contents of the **Floating Point Accumulator (FAC)** into an integer. Using this routine allows you to pass numbers to your machine code programs via the **USR** command. To use the **USR** command simply follow these steps:

- (1) **POR** the hi and lo parts of the address of your machine code program into locations **785** and **786** respectively.
- (2) Use the command such as:
 $0 = USR(0)$

Where **0** can have any value from **0 - 65535**. **Convert** will now be transferred to your machine code program at the address pointed at by locations **785** and **786**. To convert it so that your machine code program can use it, **USR** will use conversion routine at **\$5C80**, after you call this routine the hi part of **Z** will be in location **\$84** and the lo part will be in **\$85**, ready for use by your machine code program.

- (3) Before you **RTS** back to **Basic**, place the hi part of the result in the **H** index and the lo part in the **accumulator** and **JSR** to routine at **\$5831**. This subroutine places the result back into the **FAC**.
- (4) **RTS** to **Basic** and now **B** will hold the result from your machine code program.

USR can be a very useful method of passing numbers between **Basic** and machine code, but it is often easier simply to **POR** the number into location and have your machine code program get the number from that location.

We'll finish this month by looking at the last of the addressing modes that the **64's** processor (the **6810**) offers. This addressing mode is called **indexed indirect**. I must admit I've never used this mode in my own machine code programs, because its use is quite limited. You should, however, keep it in mind, just in case you find a case where it might be very useful. It has the form

(BA(\$21,X))

In the above case the **accumulator** is loaded with the value of the location which is pointed at by a **to** pointer starting at **\$20+X**. Confused? Here's an example which should help to make things clear.

```

LBA #000
STB $21
LBA #001
STB $24
LBA #002
STB $23
STB $25

```

In the above the **to** **to** pointers **\$20** and **\$24** / **\$25** are initialised to point at **\$0400** and **\$0401**, the top-left and one to the right of top-left of the screen.

```

LBA #000
LBA #001 :B
STB ($21,X)

```

If **X** is zero then **B** is placed in the top-left of the screen and if **X** were 3 then **B** would appear one character to the right of top-left.

Using this mode lets you set up a table of pointers in zero page, but there isn't really enough room in zero page for a large table, as I've already said, this mode isn't all that useful.

Conclusion

With only one part of the **Machine Code Tutor** remaining, you should be feeling confident with machine code and be ready to experiment. Next month we'll wrap everything up and I'll show you how to plan a long machine code program.

In the meantime, if you've got any questions about this course, send them in to me and I'll answer them in a follow-up article (please enclose an a/c so I can give a personal reply also).

Homework

This month's homework is to test that you've understood this month's section about the **64's** **Kernal** routines. During the next month, I want you to write a program that puts your name on the screen in 4 different places. Clue: you should use a suboutine to print your name using **CHROUT** and a loop that moves the cursor about the screen using **PLUT**. Not too difficult really — answer next month.

Next month

- More bit manipulation commands.
- How to plan your machine code programs.
- What have we learnt?
- The **T64 Machine Code Tutor** reviewed month.

SAVING MEMORY TO TAPE

```

100 PROGRAMME 01 - SAVE TO TAPE
200 :
300 :
400 A = 00000
500 :
600 SETUP = 0
700 SETTRAM = 0
800 SAVE = 0
900 :
1000 LUT #001 :NO SECONDARY ADDRESS
1100 LUT #000 :POSITION FILE NUMBER + 1
1200 LUT #000 :TAPE + DEVICE NUMBER 1
1300 JST SETUP
1400 :
1500 LBA #000 :NO FILE NAME - TAPE SAVE
1600 JST SETTRAM
1700 :
1800 LBA #000 :LO PART OF START ADDRESS
1900 STB #00
2000 LBA #000
2100 LBA #000 :HI PART OF START ADDRESS (16383)
2200 STB #00
2300 LBA #000 :LO PART OF END ADDRESS
2400 LUT #001 :NO PART OF END ADDRESS (16383)
2500 LUT #000 :OFFSET FOR START ADDRESS
2600 JST SAVE
2700 :
2800 RTS
2900 :
3000 :
3100 :
3200 :THE ABOVE PROGRAM SAYS ON AREA OF MEMORY
3300 :CANNOT BE USED TO TAPE WITH
3400 :NO FILE NAME.
3500 :

```

LOADING MEMORY FROM TAPE

```

100 PROGRAMME 01 - LOAD
200 :
300 :
400 :
500 :
600 A = 00000
700 :
800 :
900 :
1000 JST FILE LABELS
1100 :
1200 SETUP = 0
1300 SETTRAM = 0
1400 LUT = 0
1500 :
1600 LBA #001 :FILE NUMBER + 1
1700 LBA #001 :TAPE DEVI 1
1800 LBA #001 :NO FILE LABELS LOAD
1900 JST SETUP
2000 :
2100 LBA #000 :NO FILE NAME
2200 JST SETTRAM
2300 :
2400 LBA #000 :LOAD NOT VERIFY
2500 JST LUT
2600 :
2700 :
2800 :
2900 :THE ABOVE PROGRAM LOADS THE NEXT
3000 :PROGRAM FROM TAPE.
3100 :

```

The two programs above show how you can make use of the **Kernal** subroutines in your own programs; the top listing shows the **Kernal SAVE** suboutine in action, the one at the bottom includes the **Kernal LOAD** suboutine.

1000

SILVER RANGE

Seeing



001 Arcade VIC 20/Atari/Amiga/MSX
SHADE WIFE - Simplify the ethereal galls of this lord.



002 Arcade VIC 20/Atari/Amiga/MSX
MICKIE THE BRICKOY - Four screens packed with fun.



003 Arcade BBC MICRO/MSX (SPARE) - Using the planes and shoot the pigeons.



004 Arcade BBC MICRO
GOLD DRAGON - The hazards of digging for gold down under.



005 Arcade BBC MICRO
ENJOY - Comedy and music in this dark shoot.



006 Arcade BBC MICRO
ACROBATIC - Fly through to locate the mutant spinners.



007 Arcade BBC MICRO
LETRA - Remove the terror status of Eats the snake god.



008 Arcade/Amiga BBC MICRO
THE MAGNIFIER - Telephoto zooms, telephone network to multiplayer.



009 Arcade SPECTRUM/Amiga
RUN BABY RUN - Multi-colour chase and shoot-out.



010 Arcade SPECTRUM/Amiga
TERMA FORCE - Terra man defends earth against all odds.



011 Arcade SPECTRUM/Amiga
ATRAID - What happens when teacher turns his back.



012 Arcade SPECTRUM/Amiga
CRAYT GARDENS - Territorial survival, but hungry mouths to feed.



013 Arcade SPECTRUM/Amiga
EXCURS - Storage features emerging from the pits.



014 Arcade/Amiga SPECTRUM/Amiga
THE FREEZE - Six compartments, each taught to be free.



015 Arcade/Amiga SPECTRUM/Amiga
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